

STATE OF INDIANA

INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA-AMERICAN)	
WATER COMPANY, INC. FOR)	
AUTHORITY TO INCREASE ITS RATES)	
AND CHARGES FOR WATER AND)	
SEWER SERVICE, FOR APPROVAL OF)	
NEW SCHEDULES OF RATES AND)	CAUSE NO. 43187
CHARGES APPLICABLE THERETO,)	
AND FOR APPROVAL OF CERTAIN)	
TARIFF CHANGES TO IMPLEMENT A)	
TRACKING MECHANISM FOR)	
PURCHASED POWER COSTS)	

THE INDIANA OFFICE OF UTILITY CONSUMER COUNSELOR

PREFILED TESTIMONY

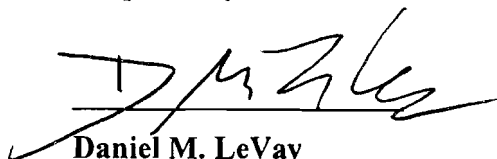
VOLUME 1

SCOTT A. BELL – PUBLIC’S EXHIBIT #1

EDWARD R. KAUFMAN – PUBLIC’S EXHIBIT #2

MAY 24, 2007

Respectfully submitted,



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CERTIFICATE OF SERVICE

This is to certify that a copy of the foregoing has been served upon the following parties of record in the captioned proceeding by electronic mail, or as otherwise arranged, on May 24, 2007.

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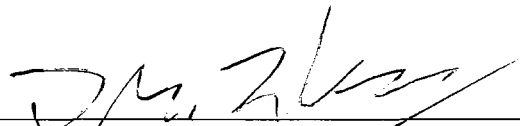
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PUBLIC'S EXHIBIT 1
SCOTT A. BELL

TESTIMONY OF SCOTT A. BELL
CAUSE NO. 43187
INDIANA AMERICAN WATER COMPANY, INC.

I. Introduction

1 **Q: Please state your name and business address.**

2 A: My name is Scott A. Bell and my business address is Indiana Government Center North,
3 100 North Senate Avenue, Room N501, Indianapolis, Indiana 46204.

4 **Q: By whom and in what capacity are you employed?**

5 A: I am employed by the Office of Utility Consumer Counselor ("OUCC") as the Director of
6 the Water/Wastewater Division.

7 **Q: What is your educational background and experience?**

8 A: I graduated from Purdue University in 1987 with a Bachelor of Science degree in
9 Industrial Management, with a minor in Industrial Engineering. I began working for the
10 Indiana Utility Regulatory Commission ("Commission") in 1988 as a Staff Engineer.
11 While employed at the Commission, I attended the Western Utility Rate Seminar
12 sponsored by the National Association of Regulatory Utility Commissioners
13 ("NARUC"). In 1990, I was transferred to the Indiana Office of Utility Consumer
14 Counselor ("OUCC") at the time of the reorganization of the Commission and the
15 OUCC. In 1999, I was promoted to the position of Assistant Director of the newly
16 formed Rates/Sewer/Water Division. In 2005, I was promoted to the position of Director
17 of the Division, which was subsequently renamed the Water/Wastewater Division. In
18 September 2006, I was appointed as a member of the new Water Shortage Task Force,
19 created by SEA 369 in the 2006 General Assembly and will serve a two year term. I

1 have attended numerous utility related seminars and workshops during my employment.

2 I have also completed additional coursework regarding water and wastewater treatment at

3 Indiana University Purdue University Indianapolis.

4 **Q: Have you previously testified before this commission?**

5 A: Yes. I have testified in many causes relating to telephone, gas, electric, water, and sewer

6 utilities. Over the past six years, I testified exclusively about water and wastewater utility

7 issues. Some of those issues included the reasonableness of cost of service studies, rate

8 design, fair value, Replacement Cost New Less Depreciation studies, engineering related

9 operation and maintenance expenses, and capital improvement projects.

10 **Q: Please provide a brief summary of your testimony.**

11 A: I first provide a brief overview of Petitioner. Second, I list the six other OUCC witnesses

12 who will be testifying in this cause and briefly describe the issues raised in their

13 testimonies. Third, I discuss my review and analysis of Petitioner's Replacement Cost

14 New Less Depreciation ("RCNLD") study. Finally, I discuss the promotion of water

15 conservation and the efficient use of water as it relates to Petitioner.

16 **II. Overview of Petitioner**

17 **Q: Please describe Petitioner.**

18 A: Petitioner is Indiana American Water Company, Inc. (Hereafter referred to throughout

19 the OUCC's case as context dictates as "Petitioner", "the Utility", "the Company" and

20 "Indiana American"). Petitioner is a wholly owned subsidiary of American Water, which

21 is a wholly owned subsidiary of Thames Water Aqua Holdings GmbH ("Thames

22 Water"). Thames Water is a wholly-owned subsidiary of RWE. Petitioner is both a local

23 and regional water service provider serving approximately 280,000 retail and wholesale

1 service connections in approximately 130 communities throughout Indiana. Petitioner
2 also provides wastewater utility service to two small communities in the State.

3 **III. Overview of OUCC Testimony**

4 **Q: Please describe the scope of the OUCC's review.**

5 A: As an investor owned utility, Petitioner's rates and charges are regulated under Indiana
6 Code Chapter IC 8-1-2-1 et seq. The OUCC staff assigned to this case reviewed
7 Petitioner's case-in-chief, including the prefiled testimony and related exhibits,
8 accounting schedules, attachments and workpapers. The accounting staff reviewed
9 Petitioner's fixed asset records and conducted several onsite accounting audits to review
10 Petitioner's books and records and gather additional financial information about the
11 Utility. The engineering staff met with utility representatives and conducted onsite field
12 inspections of many of Petitioner's water utility facilities and reviewed proposed
13 Petitioner's capital improvements, engineering related operation and maintenance
14 expenses, extensions and replacements projects. All staff members participated in
15 drafting twenty-one (21) sets of data requests consisting of 326 questions with sub-parts
16 and reviewed Petitioner's answers to those questions. The staff attended the
17 Commission's evidentiary hearing in Indianapolis and the public field hearings conducted
18 in Greenwood, Jeffersonville and Gary, Indiana. Finally, the staff participated in
19 numerous internal meetings to frame and discuss the issues of this case.

20 **Q: Please provide a summary of the OUCC's testimony.**

21 A: The OUCC recommends a 2.94 % increase in rates to produce additional revenues of
22 \$4,159,416 per year. The OUCC also recommends that the Commission deny
23 Petitioner's request to track what it calls purchased power costs. More specifically, the

1 OUCC recommends the Commission approve a Cost of Equity of 8.75% and certain
2 accounting adjustments. The OUCC's other witnesses discussing these issues are
3 Edward Kaufman, Judy Gemmecke, Margaret Stull, Richard Corey, Hal Rees, Hal
4 Riceman, and Roger Pettijohn. In addition to the forgoing witnesses, I discuss
5 Petitioner's RCNLD Study and its relationship to its fair value rate base. I also discuss
6 why water conservation is important to the OUCC and why Petitioner should initiate a
7 water conservation program. Next, financial analyst, Edward Kaufman, provides
8 testimony discussing Petitioner's cost of equity and the proposed tracking of Indiana-
9 American's power expenses. Judy Gemmecke, CPA, sponsors the OUCC's accounting
10 schedules and discusses a number of rate base issues as well as expense issues. Margaret
11 Stull addresses various issues including income recorded below the line, Sarbanes-Oxley
12 costs, Alton Call Center costs, and other various expense adjustments. Rich Corey
13 addresses issues including revenue normalization, revenue normalization expense
14 adjustment, purchased water expense, uncollectible expense and postage expense. Hal
15 Riceman addresses various issues including labor expense, group insurance expense,
16 payroll tax expense and 401k expense. All four of these accounting witnesses propose
17 various adjustments and corrections affecting the Petitioner's ultimate rates and charges.
18 OUCC witness Roger Pettijohn discusses the utility's non-recurring maintenance
19 expenses, meter replacement program and the inclusion of high service pump capacity in
20 Jeffersonville. Finally, Hal Rees discusses the Implementation Cost Allocation for the
21 Alton Call Center.

22 Q: **What investigations have you performed in this cause?**

23 A: I reviewed Petitioner's testimony with specific emphasis on the testimony of Daniel F.

1 Haddock (Exhibit DFH) and the Replacement Cost New Less Depreciation (RCNLD)
2 study (Exhibits DFH-1 and DFH-2). I participated in preparing discovery questions and
3 reviewed Petitioner's responses. I have also reviewed numerous publications regarding
4 water conservation. I also participated in numerous meetings and discussions with
5 OUCC Staff regarding this case.

6 **Q: How is the remainder of your testimony organized?**

7 A: My testimony is provided in the following sections:

- 8 • Discussion of Petitioner's RCNLD Study.
- 9 • Discussion of Water Conservation.

10 **IV. Replacement Cost New Less Depreciation Study**

11 **Q: Has Petitioner prepared and provided evidence regarding Replacement Cost New**
12 **and Replacement Cost New Less Depreciation values in this proceeding?**

13 A: Yes. Petitioner's witness Daniel F. Haddock filed testimony and included Exhibits DFH-
14 1 and DFH-2, which constitute the RCNLD Study. As Mr. Haddock states, the RCNLD
15 Study evaluates and determines the current RCN and RCNLD of Petitioner's utility plant
16 in service.

17 **Q: What is Indiana-American's purpose for providing this type of evidence?**

18 A: Mr. Haddock states on page 7 that the purpose of an RCNLD study is to assess the cost to
19 reproduce the existing utility plant in service based on current material and equipment
20 prices and current construction and wage levels. Historically, Petitioner has presented a
21 RCNLD Study as evidence in support of its fair value rate base. In fact, Petitioner has
22 included a RCNLD Study as evidence in its last nine rate cases. Mr. Haddock testified
23 that he sponsored the "study performed to determine the reproduction cost new ("RCN")

1 and the reproduction cost new less depreciation ("RCNLD") of the Company's utility
2 plant in service." (p. 3-4) However, he does not state that the RCNLD study should be
3 considered the fair value of Petitioner's rate base figure. In fact, in response to OUCC
4 cross examination Mr. Haddock stated he was not suggesting that the RCNLD Study
5 should be considered the fair value of Petitioner's rate base.

6 Q: Are you suggesting in your testimony that the value that you have
7 in your RCNLD Study should be considered the fair value of the
8 rate base?

9 A: In my testimony, no, I'm not suggesting that. I'm just doing the
10 study and presenting the RCNLD cost.
11 [Hearing Transcript, March 19, 2007, page B-107, lines 7-12]

12 **Q: What was the conclusion of Mr. Haddock's study?**

13 A: Mr. Haddock determined that, as of December 31, 2006, the original cost of Petitioner's
14 utility plant in service ("UPIS") is \$869,548,749 and that the RCNLD is \$1,415,636,221.
15 (These figures include plant contributed to the Utility, which is treated as a Contribution-
16 in-aid-of-Construction ("CIAC") for accounting purposes and is not considered by the
17 Commission when determining rate base.)

18 **Q: Was an adjustment to Mr. Haddock's study made for technological change?**

19 A: Yes. On page 13, Mr. Haddock explains his adjustment to factor technological change
20 into the proposed RCNLD value. As a result of this technological change adjustment,
21 Petitioner's proposed RCNLD value for the Utility's UPIS as of December 31, 2006 is
22 \$793,245,718. (See p. 4 of 4, Exhibit DFH-1, Schedule 1)

23 **Q: Did Petitioner use the RCNLD study to determine its fair value rate base?**

24 A: No. I reviewed the testimony of Mr. Edward J. Grubb and found that he did not use the
25 RCNLD Study to determine Petitioner's fair value rate base. Rather, Mr. Grubb stated in

his testimony that he used a methodology employed by the Commission in Cause Nos. 40103, 40703, 42029 and 42520 to determine a fair value rate base figure of no less than \$749,481,000 (p. 10). However, on page 9, Mr. Grubb did state the following:

We contend the RCNLD adjusted for technological change represents the minimum fair value of those assets. Nevertheless, I recognize that in the last several rate orders for Indiana American, the fair value finding had been derived by updating the fair value finding from the prior rate case for inflation that has occurred since the valuation date and for net investor supplied plant additions that would not have been included in that fair value finding.

Mr. Grubb thus acknowledged that the Commission did not use the RCNLD studies in past cases to derive the fair value rate base. I have included a table below summarizing from the past nine orders the following: (1) The original cost rate base; (2) Petitioner's proposed RCNLD value (with some values adjusted for technology); and (3) the Commission's fair value rate base determination. This table (Table 1) illustrates the historical differences between Petitioner's proposed RCNLD values and the Commission's fair value rate base determinations.

Table No. 1

Case No.	Effective Date	Petitioner's Proposed RCNLD Value	Commission's Fair Value Rate Base Determination
42520	11/18/04	469,867,524	* 882,408,588
42029	11/06/02	403,085,800	* 756,281,105
41320	07/01/99	293,003,938	* 492,108,096
40703	12/11/97	221,628,031	* 398,701,046
40103	05/30/96	186,279,406	* 303,571,716
39595	02/02/94	114,762,256	299,336,080
39215	05/27/92	107,435,891	289,367,162
38880	09/26/90	90,964,050	273,239,652
38347	07/06/88	80,721,738	209,196,578

* RCNLD value adjusted downward for technological change to determine "Replacement Cost Rate Base".

1 **Q: May the Commission consider such studies when determining a utility's fair value**
2 **rate base?**

3 A: Yes. At subsection (b) of I.C. §8-1-2-6, Valuation of Property, the Indiana Code
4 provides the following:

5 As an element in determining value the Commission may also take into
6 account reproduction costs at current prices, less depreciation, based on
7 [tangible property] and shall not include good will, going value, or natural
8 resources.

9 **Q: Are RCNLD studies the only evidence that the Commission may consider when**
10 **determining a utility's fair value rate base?**

11 A: No. The Commission's Order On Remand in Cause No. 37612, Indianapolis Water
12 Company, approved July 3, 1986, page 23-24, states:

13 The Court has advised us that it is upon the fair value of a utility's
14 property that a utility should be allowed to earn a return. 484 N.E.2d at
15 639. As stated, it is upon the issue of the valuation of the Petitioner's used
16 and useful property that the Court remanded this Cause to the
17 Commission. The Court's decision provides the Commission with the
18 considerable guidance and direction in its task of determining the fair
19 value of Petitioner's property. The Court noted that there exist a
20 misperception that fair value is an either/or choice between original cost
21 and reproduction cost. In providing guidance to correct this
22 misconception the Court quoted from the Supreme Court in Public Service
23 Commission v. City of Indianapolis, 235 Ind. 70, 131 N.E. 2d at 318
24 (1956) where the Supreme Court stated:

25 [t]he Courts will not limit the commission to any one or
26 more methods of valuation, be it prudent investment,
27 original cost, present value, or reproduction costs. This
28 Court has held that the cost of reproduction depreciated is a
29 proper item to be considered under the statute in arriving at
30 a fair value figure. Public Service Commission v. City of
31 Indianapolis Rys., supra, 1948, 225 Ind. 656, 76 N.E. 2d
32 841. The ratemaking process involves a balancing of all
33 these factors and probably others; a balancing of the
34 owner's or investor's interest with the consumer's interest.
35 On the one side, the rates may not be so low as to
36 confiscate the investors interests or properties; on the other
37 side rates may not be so high as to injure the consumer by

1 charging an exorbitant price for service and at the same
2 time giving the utility owner an unreasonable or excessive
3 profit.

4 **Q: Do you have any recommendations regarding the use of Mr. Haddock's RCNLD**
5 **study to determine or support Petitioner's proposed fair value rate base figure?**

6 **A:** Yes. I recommend that the Commission give no more weight to Petitioner's RCNLD
7 study than it has given the studies offered in the past nine rate cases.

8 **V. Water Conservation**

9 **Q: What is the OUCC's position on the efficient use of water and water conservation?**

10 **A:** The OUCC supports the efficient use of Indiana's valuable natural resources, and water is
11 one of those valuable natural resources. The OUCC believes that Petitioner should
12 efficiently use its water resources and promote water conservation. I believe this position
13 is consistent with policy statements made by the American Water Works Association
14 ("AWWA") and the United States Environmental Protection Agency ("EPA").

15 **Q: Has the American Water Works Association made any statements of policy on the**
16 **efficient use of water?**

17 **A:** Yes. On January 20, 2002 the AWWA reaffirmed the adoption of its policy statement on
18 Water Use Efficiency. The statement is as follows:

19 The American Water Works Association (AWWA) strongly encourages
20 water utilities to adopt policies and procedures that result in the efficient use
21 of water, in their operations and by the public, through a balanced approach
22 combining demand management and phased source development.

23 To this end, AWWA supports the following water conservation principles and
24 practices:

- 25 1. Efficient utilization of sources of supply;
26 2. Appropriate facility rehabilitation or replacement;
27 3. Leak detection and repair;

4. Accurate monitoring of consumption and billing based on metered usage;
5. Full cost pricing;
6. Establishment of water-use-efficiency standards for new plumbing fixtures and appliances and the encouragement of conversion of existing high-water-use plumbing fixtures to more efficient designs;
7. Encouragement of the use of efficient irrigation systems and landscape materials;
8. Development and use of educational materials on water conservation;
9. Public information programs promoting efficient practices and water conservation by all customers;
10. Integrated resource planning;
11. Water reuse for appropriate uses; and
12. Continued research on efficient water use practices.

Q: Has the American Water Works Association ("AWWA") made any other statements of policy on the efficient use of water?

A: Yes. On June 13, 2004 the AWWA made its latest revision to its policy on Developing and Managing Water Resources. The statement is as follows:

The American Water Works Association (AWWA) supports and promotes sound water resources planning and management which provides for an adequate supply of high-quality water for people. These efforts should give careful consideration to regional water resource conditions, environmental impacts, and project cost.

This must include the wise use of available resources, conservation of water by all practicable means, the reduction of pollution using best management practices, effective treatment and distribution of water, the encouragement of effective water reclamation and reuse when economically and technologically feasible, consideration of in-stream flow needs, and the taking of appropriate steps to protect life, property, and land from destructive forces of water.

Because comprehensive planning is a dynamic process, continual appraisal becomes the basis for the evolution of policies. It is equally important that the environmental implications of the plans be thoroughly considered in order that any adverse environmental impact be minimized.

It is with this background that AWWA sets forth the following principles by which the water supply profession can best meet its responsibilities to the public.

1. Where competition among water users occurs, high priority should be given to meeting human needs. To the maximum extent possible, higher quality water should be assigned to domestic use.
2. Each water source should be developed and managed with careful attention to the hydrologic and ecologic systems of which the particular source is a part. Surface and groundwater sources should be managed conjunctively.
3. The growing value of alternative water sources, such as desalted sea or inland saline water as public and industrial water sources, must be recognized. Such sources should be utilized where freshwater supplies are unavailable or inadequate, or where such converted waters are economically advantageous.
4. The responsible use of reclaimed water in lieu of potable water is encouraged for nonpotable uses. AWWA urges continued research to improve treatment technology, monitoring techniques, and the development of health-based drinking water standards, thereby assuring the safe use of reclaimed water.
5. The degradation of the quality of water supply sources has damaging effects on health, welfare, the economy, and the environment. Public water supplies, as an essential factor in the economy, are entitled to a good-quality source water.
- 6. Water is a renewable natural resource. It must be managed to best meet many needs. Every effective means to prevent and minimize waste and promote wise use should be employed by all entities, public and private, engaged in water resource activities.**
7. Hydrologic, environmental, and other basic data are crucial to water resources development and management. Federal water resources data acquisition programs should be designed and conducted with attention to the full range of current and future uses by all entities, public and private. National databases on streamflow, groundwater levels, water quality, pollution threats, and land use should be made easily available to all water suppliers for their use in water resources development and management.

The role of the federal governments in water resource programs and projects should be supportive and cooperative, not preemptive. Federal governments should recognize and respect the right of each state or province to control the use of its water and associated land resources, provided that management of the resources is responsible to clearly

1 defined national and international needs. Regulations should not
2 necessarily be uniform but should be tailored to regional circumstances
3 and requirements. [Emphasis Added]

4 **Q: Has the AWWA produced a manual describing Water Conservation Programs?**

5 **A:** Yes. The AWWA has recently published a Manual of Water Supply Practices – M52
6 titled Water Conservation Programs – A Planning Manual.

7 **Q: What are some of the reasons for utilities to pursue efficient water use?**

8 **A:** On page 3 of the AWWA M52 Manual it states the following:

9 There are many reasons for water utilities to pursue wise water use and
10 establish a water conservation program. The specific reasons will be
11 different for each utility, and the appropriate level of conservation for a
12 utility should be tailored to local needs.

13 There is a broad array of reasons to pursue efficient water use. Some
14 examples for consideration are included below:

- 15 • Cost savings – lowering water production and/or distribution costs
16 will save the utility and its constituents money in reduced
17 operation cost and possibly deferred capital costs. Conservation is
18 often an important part of a least-cost future water supply plan.
- 19 • Wastewater treatment and disposal benefits – reduction of interior
20 water use cuts wastewater flows, resulting in cost savings and
21 lessened environmental impacts of treated wastewater disposal.
- 22 • Environmental benefits – water removed from a water body for
23 human use could be used for environmental and other purposes.
24 For example, protection of endangered species often requires a
25 reliable source of good quality water, which might be lessened by
26 water withdrawals.
- 27 • Competing beneficial uses – in addition to the environment, water
28 left in place could be used for agriculture, power production,
29 recreation, aesthetic enjoyment, etc.
- 30 • Water supply limitations – few places now enjoy unlimited water
31 supplies. Water conservation can stretch existing supplies,
32 whether supply is from groundwater or surface water.

- Utility stewardship and sustainability – utilities that conserve water demonstrate leadership in resource management and are working toward a goal of sustainability. More economic activity can occur on the same water resource.
- Energy savings – reducing water production will save energy and reduce greenhouse gas emissions.
- Improved supply reliability – conservation can reduce the frequency and duration of drought water use curtailments by essentially increasing supply.
- Customer benefits – customers who conserve water may enjoy lower water bills and possibly lower wastewater and energy bills.
- Regulatory compliance – some state regulatory agencies require water conservation plans and/or implementation progress to qualify for permits, grants, and loans.
- Public perception – the public often insists on demonstrating efficient use of existing water supplies before supporting expansion of supplies to meet new water needs.

Q: Does the AWWA M52 Manual describe the steps necessary to developing a Water Conservation Plan?

A: Yes. On page 4 of the Manual, it states the following:

To start a water conservation program, a water conservation plan should be developed. The following ten basic steps outline the activities undertaken in a water conservation planning effort to develop a cost-effective plan.

1. Review detailed demand forecast
2. Review existing water system profile and descriptions of planned facilities
3. Evaluate the effectiveness of existing conservation measures
4. Define conservation potential
5. Identify conservation measures
6. Determine feasible measures
7. Perform benefit-cost evaluations
8. Select and package conservation measures
9. Combine overall estimated savings
10. Optimize demand forecasts

1 **Q: Has the United States Environmental Protection Agency (“USEPA”) made any**
2 **official statements about efficient water use?**

3 A: Yes. The USEPA Office of Water made an official “*Statement of Principles on Efficient*
4 *Water Use*” in December, 1992. This statement is as follows:

5 In order to meet the needs of existing and future populations and ensure
6 that habitats and ecosystems are protected, the nation’s water must be
7 sustainable and renewable. Sound water resource management, which
8 emphasizes careful, efficient use of water, is essential in order to achieve
9 these objectives.

10 Efficient water use can have major environmental, public health, and
11 economic benefits by helping to improve water quality, maintain aquatic
12 ecosystems, and protect drinking water resources. As we face increasing
13 risks to ecosystems and their biological integrity, the inextricable link
14 between water quality and water quantity become more important. Water
15 efficiency is one way of addressing water quality and quantity goals. The
16 efficient use of water can also prevent pollution by reducing wastewater
17 flows, recycling industrial process water, reclaiming wastewater, and
18 using less energy.

19 **Q: Has the USEPA created water conservation plan guidelines for water systems to**
20 **plan and implement effective goal-oriented water conservation strategies?**

21 A: Yes. The 1996 Amendments to the Safe Drinking Water Act (“SDWA”) recognized the
22 potential value of water conservation and required that USEPA publish water
23 conservation guidelines within two years of the Act’s passage. On August 6, 1998, the
24 USEPA published Water Conservation Plan Guidelines (“Guidelines”) (USEPA
25 document number EPA-832-D-98-001, August 1998) for use by water utilities in
26 planning and implementing effective goal-oriented water conservation strategies. The
27 Guidelines make the following statement:

28 These Guidelines are intended to help systems plan and implement
29 effective and goal-oriented water conservation strategies. The Guidelines
30 highlight the conservation goal of long-term reductions in capital facility
31 costs. They provide a methodology for systems that are planning capital
32 improvements (namely, SRF applicants) to incorporate conservation into

1 their plans. The conservation plan can aid systems in making adjustments
2 to planned capital improvements and demonstrating the system's
3 commitment to efficient water supply operations.

4 Conservation planning can be beneficial to most water systems, not just
5 those with an impending capital project. Even systems that consider
6 supplies plentiful and facilities adequate find that conservation planning
7 helps use existing resources more efficiently and save resources over the
8 long term.

9 The planning approach reflected in these Guidelines is consistent with the
10 idea of integrated resource planning (IRP), which emphasizes a balanced
11 consideration of supply-management and demand-management options in
12 meeting a water system's needs. According to this perspective,
13 conservation can help water systems avoid supply-side costs through cost-
14 effective demand-side management strategies. Ideally, integrated planning
15 combines the utility's best efforts in supply and demand management.

16 The benefits and costs associated with water conservation can be
17 measured from a variety of perspectives: water suppliers, water customers,
18 and society at large. For practical reasons, the Guidelines emphasize the
19 perspective of the water supplier. Systems following the Advanced
20 Guidelines are encouraged to examine conservation from other
21 perspectives, including the broader societal viewpoint. (p. 8)

22 **Q: Are there different guidelines for water utilities based on the population served?**

23 A: Yes. U.S. EPA prepared three sets of guidelines: Basic, Intermediate and Advanced.
24 The Basic guidelines are designed to be used by water systems serving populations of
25 10,000 or fewer. The Intermediate guidelines are designed for water systems serving
26 populations between 10,000 and 100,000. The Advanced guidelines are designed for
27 water systems serving populations over 100,000. Petitioner serves a population well over
28 100,000 and would fall under the Advanced guidelines.

29 **Q: Please describe the planning steps for the Advanced guidelines.**

30 A: On page 17 of the Guidelines it states that "...Advanced Guidelines suggest nine
31 planning steps that apply generically to water conservation planning:

1. Specify Conservation Planning Goals
2. Develop a Water System Profile
3. Prepare a Demand Forecast
4. Describe Planned Facilities
5. Identify Water Conservation Measures
6. Analyze Benefits and Costs
7. Select Conservation Measures
8. Integrate Resources and Modify Forecasts
9. Present Implementation and Evaluation Strategy"

The nine planning steps are discussed in more detail in Table 2-2, page 41 of the Guidelines.

Q: Did Petitioner provide testimony describing its water conservation efforts?

A: I did not find any testimony from Petitioner's witness's that discussed Indiana American's efforts to promote water conservation or the efficient use of water. However, Petitioner's website (www.amwater.com) provided customers with several tips for using water wisely both outside and inside. I would encourage Petitioner to supplement the existing website content with additional water conservation information for its customers. A tremendous amount of consumer information is available at the AWWA's WaterWiser website (www.awwa.org/waterwiser), the USEPA WaterSense website (www.epa.gov/owm/water-efficiency/index.htm), and the California Urban Water Conservation Council's website (www.h2ouse.org). Also, I recommend that Petitioner initiate a formal water conservation program by first developing a water conservation plan using the methods described in the AWWA M52 Manual and/or the USEPA's Water Conservation Plan Guidelines referenced above.

Q: Please summarize your recommendations.

A: I have the following recommendations:

- 1 1. That the Commission give Petitioner's RCNLD study no more weight than it has
2 given it in its past nine rate cases when determining a fair value rate base.
- 3 2. That the Commission order Petitioner to initiate a formal water conservation
4 program by first developing a water conservation plan using the methods
5 described in the AWWA M52 Manual and/or the USEPA's Water Conservation
6 Plan Guidelines. The water conservation plan should be initiated by December
7 31, 2007 and completed no later than December 31, 2009. A copy of the water
8 conservation plan should also be submitted to the Commission and the OUCC
9 when completed.

10 **Q:** **Does this conclude your testimony?**

11 **A:** Yes.

PUBLIC'S EXHIBIT 2
EDWARD R. KAUFMAN

Edward Kaufman

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TESTIMONY OF EDWARD R. KAUFMAN, CRRA
CAUSE NO. 43187
INDIANA AMERICAN WATER COMPANY

1 **Q: Please state your name and business address.**

2 A: My name is Edward R. Kaufman and my business address is Indiana Government
3 Center North, 100 North Senate Avenue, Room N501, Indianapolis, Indiana 46204-
4 2215.

5 **Q: By whom and in what capacity are you employed?**

6 A: I am a Senior Analyst employed by the Indiana Office of Utility Consumer Counselor
7 (OUCC).

8 **Q: Please describe your credentials.**

9 A: I graduated from Bentley College in Boston, Massachusetts with a Bachelors degree
10 in Economics/Finance and an Associates degree in Accounting. Before attending
11 graduate school, I worked as an escheatable property accountant at State Street Bank
12 and Trust Company in Boston, Massachusetts. I was awarded a graduate fellowship
13 to attend Purdue University where I earned a Masters of Science degree in
14 Management with a finance concentration.

15 I was hired as a Utility Analyst in the Economics and Finance Division of the OUCC
16 in October 1990. My primary areas of responsibility have been in utility finance,
17 utility cost of capital and regulatory policy. I have worked on a range of utilities
18 including natural gas, electric, water and wastewater. I was promoted to Principal
19 Utility Analyst in August 1993 and to Assistant Chief of Economics and Finance in

1 July 1994. As part of an agency wide reorganization in July 1999, my position was
2 reclassified as the Lead Financial Analyst within the Rates/Water/Sewer division. In
3 October, 2005 I was promoted to Assistant Director of the Water/Wastewater
4 division. I have participated in numerous conferences and seminars regarding utility
5 regulation and financial issues. I have been awarded the professional designation
6 Certified Rate of Return Analyst (CRRRA). This designation is awarded based upon
7 experience and the successful completion of a written examination. I have testified
8 before the IURC on several occasions.

9 **INTRODUCTION**

10 **Q: What is the purpose of your testimony and how is it organized?**

11 A: The first section presents my estimate of Indiana American's cost of equity. The
12 second section critiques Mr. Moul's cost of equity analysis. In the third section I
13 respond to Petitioner's proposal to track its electricity and natural gas costs,
14 specifically focusing on Mr. Heid's testimony. Finally, in the fourth section I discuss
15 Mr. Grubb's fair value reasonableness tests.

16 **Q: What investigations have you performed in preparation of your testimony?**

17 A: I reviewed the Petition, testimony and exhibits filed by Petitioner in this Cause. I
18 have conducted discovery and reviewed the results. My preparations also include a
19 review of numerous financial articles that discuss anticipated returns in the market
20 that are relevant to estimating cost of equity. I have attended numerous meetings
21 with OUCC staff and attorneys to discuss and evaluate issues in this Cause.

1 **Q: Please describe your schedules and attachments.**

2 A: My testimony includes 5 schedules and 11 attachments. Schedule 1 is two pages and
3 contains a summary of the results of my cost of equity models. Schedule 2 is three
4 pages and contains my DCF analysis. Schedule 3 is five pages and contains my
5 CAPM analysis. Schedule 4 is one page and contains historical data on returns for
6 the S&P 500. Schedule 5 is two pages and provides updated data and analysis to Mr.
7 Moul's schedule 10.

8 Attachment 1 is a copy of the 1st quarter Survey of Professional Forecasters, Federal
9 Reserve Bank of Philadelphia Release (February 13, 2007). Attachment 2 is two
10 excerpts from presentations made at the June 8, 2006 "Profiting in the Water Industry
11 Conference, Tapping a Reservoir of Wealth". Attachment 3 is a chart published by
12 Value Line titled "A Long Term Perspective Dow Jones Industrial Average, 1920 –
13 2005" (Quarterly Price Range). Attachment 4 is an article that appeared in the Wall
14 Street Journal on January 27, 2003 titled Analysts: Still Coming Up Rosy.
15 Attachment 5 is an article titled 9% Forever? by Justin Fox published by
16 CNNMoney.com on December 26, 2005. Attachment 6 contains two articles, the
17 first by Roger Ibbotson titled Building the Future From the Past and the second by
18 John Campbell titled Stock Returns for New Century. Attachment 7 is selected pages
19 from a presentation made by Professor Aswath Damodaran at the Society of Utility
20 and Regulatory Financial Analysts (SURFA) 39th Annual Financial Forum held on
21 April 19-20, 2007. Attachment 8 is page 2 from Value Line's Ratings and Reports

1 (February 23, 2007). Attachment 9 is page 33 from Duke University's Winter 2007
2 CFO Business Outlook Survey U.S. Attachment 10 (four pages) is the first page
3 from four issues of Value Line's Summary & Index from February 23, 2007 – March
4 16, 2007. Attachment 11 is one page from each of the October 2006 and April 2007
5 Blue Chip Financial Forecasts.

6 **Q: Please summarize your cost of equity testimony.**

7 A: I use both a Discounted Cash Flow (DCF) and Capital Asset Pricing Model (CAPM)
8 analysis to estimate Petitioner's cost of equity. My estimate of Petitioner's cost of
9 equity is 8.75%. My DCF model produces a range of estimates from 8.45% to 9.36%
10 and my CAPM analysis produces a range of estimates of 7.71% to 9.02%. A cost of
11 common equity of 8.75% results in a weighted cost of capital of 6.770% (J.
12 Gemmecke Schedule 11, page 1 of 4).

13 My estimate of Indiana American's cost of equity is 275 basis points less than Mr.
14 Moul's recommended cost of equity. The majority of our differences are explained
15 by the inputs to the various models, adjustments that Mr. Moul makes to his models
16 and the weight we give to each of the models. For example, Mr. Moul increases the
17 results of his DCF analysis by 95 basis points and the results of his CAPM analysis
18 by 137 basis points to account for the difference between the market and book value
19 of the proxy group's capital structure.

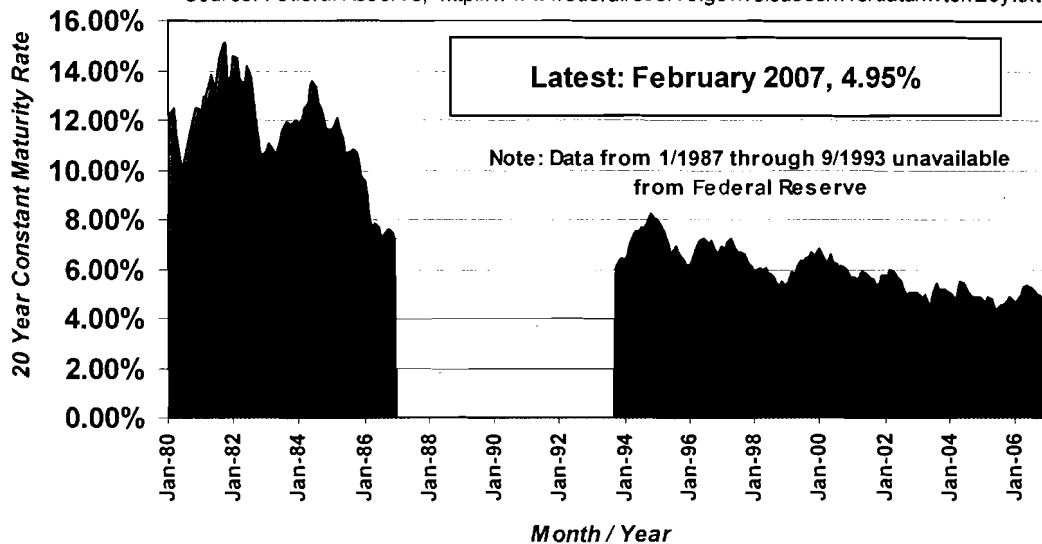
1 **Q: Do the current level of inflation and interest rates influence estimated costs of**
2 **equity?**

3 A: Yes. Inflation rates influence capital costs and are at historically low levels. Over
4 the last 16 years (1991–2006), inflation has not been greater than 3.4% and has
5 averaged 2.6% (Ibbotson's 2007 SBBI Yearbook, page 327). The last time the
6 United States had 16 successive years where inflation was less than 3.5% was from
7 1952 -1967. In 2006 inflation was 2.5% (Ibbotson's 2007 SBBI Yearbook, page
8 327). Moreover, projected inflation is also expected to remain low. In its Survey of
9 Professional Forecasters the Federal Reserve Bank of Philadelphia (February 13,
10 2007) (Attachment 1) forecasts inflation will average 2.35% over the next 10 years.

11 Interest rates are influenced by inflation and increases in interest rates generally
12 increases the cost of equity. While short term interest rates have increased over the
13 last three years, long term interest rates remain at historically low levels and are still
14 lower today than they have been during most of the last 40 years. The two charts
15 (below) show the yields on 20 - Year Constant Maturity US Treasury bonds for
16 January 1980 – February 2007 and April 1953 – February 2007.

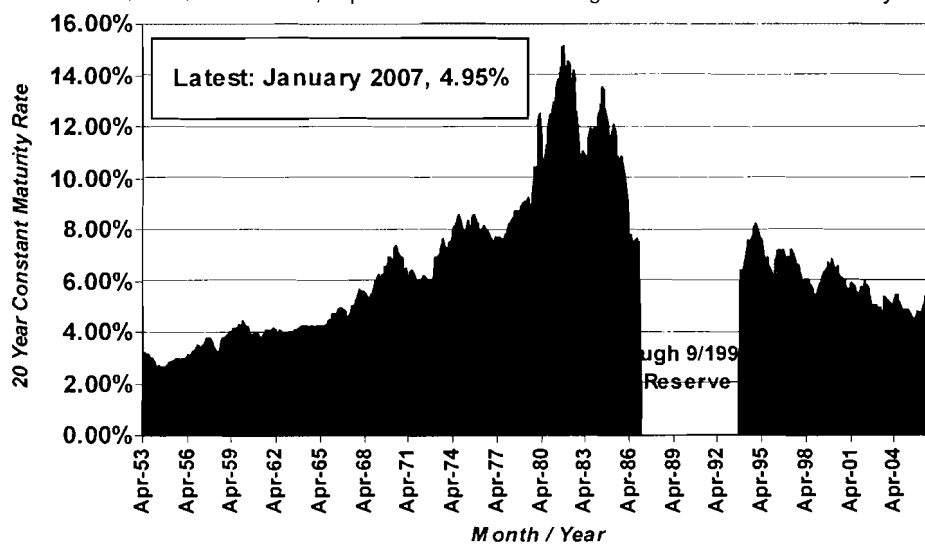
20 Year Constant Maturity Rate

Source: Federal Reserve, <http://www.federalreserve.gov/releases/h15/data/m/tcm20y.txt>



20 Year Constant Maturity Rate

Source: Federal Reserve, <http://www.federalreserve.gov/releases/h15/data/m/tcm20y.txt>



1 The lower cost of capital is demonstrated through some of the lowest long term
2 interest rates that we have seen since the late 1960s. Lower interest rates translate
3 directly into a lower cost of equity. The cost of equity presented in my testimony
4 reflects the fact that long term capital costs are still lower today than they have been
5 in the last 40 years.

6 **Q: Other than the historically low level of inflation and interest rates, are there any**
7 **other reasons that help explain why current cost of equity estimates are lower**
8 **than they have been in the past?**

9 A: Yes, In 2003 President Bush signed the *Jobs and Growth Tax Relief Reconciliation*
10 *Act of 2003*, which reduced the tax rates on dividend income and capital gains. The
11 tax legislation reduced the tax on dividends from 30 percent (the average tax bracket
12 for individuals) to 15 percent. Holding all other factors constant, the cut in taxes on
13 dividends leads to an increase in after tax return on dividends. In response to the cut
14 in taxes on dividends, stocks with high payout ratios (such as water utilities) typically
15 experienced an increase in their price and a subsequent reduction in their dividend
16 yield. In other words there was reduction in their cost of capital. I am not asserting
17 the IURC should authorize a lower cost of equity as result of the tax cut, since any
18 influence from the tax cut is already reflected in current price and subsequent
19 dividend yields of the stocks in the proxy groups. My discussion here simply
20 attempts to explain one reason why the models may produce lower results than what
21 has been seen in by water utilities in previous rate cases.

1 **Q: Please compare the cost of debt in Petitioner's last rate case and the cost of debt**
2 **today.**

3 In Petitioner's last case Dr. Boquist used a long term risk free rate of 5.16% (spot
4 rate) while in this case Mr. Moul uses a forecasted average risk free rate of 5.25%
5 (Page 53). As of the close of business on Friday May 11, 2007 the current or spot
6 yield on long term U.S. Treasury bonds was 4.84%. Thus, long term U.S. Treasury
7 bonds have a somewhat lower yield than the yield at time of Petitioner's last rate
8 case. Petitioner's average cost of long term debt has decreased since its last rate case
9 from 6.86% to 6.78% (Petitioner's number, the OUCC's cost of long term debt is
10 6.73%). This is a decrease of 8 basis points with Petitioner's cost of long term debt
11 and 13 basis points with the OUCC's cost of long term debt. Also Petitioner recently
12 issued \$16 million in long term debt at an interest rate of 5.77% (Cause No. 43256).

13 Moreover, the yield on "A" rated (25/30 year) utility bonds as of February 21, 2007
14 was 5.74% (Value Line Selection & Opinion). That is an increase of 18 basis points
15 from one year ago and a decrease of 3 basis points from the time I prepared testimony
16 in Petitioner's last rate case when the yields on "A" rated utility bonds were 5.56%
17 and 5.77%¹. The yield on BBB rated (25/30 year) utility bonds as of February 21,
18 2007 was 5.97%. That is an increase of 5 basis points from one year ago and a
19 decrease of 30 basis points from the time of Petitioner's last rate case when the yields
20 on Baa/BBB rated utility bonds were 5.92% and 6.27% (Value Line).

1. Value Line Selection and Opinion, January 9th, 2004.

1 **Q: Is this the same cost of equity you recommended in Indiana American's last rate**
2 **case.**

3 A: Yes. I do not believe that Petitioner's risk has increased since its last rate case.
4 Forecasted inflation remains low. Long term interest rates are equal to or less than
5 they were at the time of Petitioner's last rate case. The average dividend yield for
6 companies in the water industry is lower today than they were at the time of
7 Petitioner's last rate case. Finally, Indiana American's average cost of long term debt
8 is similar to its last rate case.

9 **Q: What type of returns have the water industry earned over the last 10 years**
10 **compared to the major stock indexes?**

11 A; The water industry has generally performed well over the last 10 years. According to
12 two excerpts from presentations made at a conference presented by The Wall Street
13 Transcript in New York City on June 8, 2006 titled "Profiting in the Water Industry
14 Conference, Tapping a Reservoir of Wealth" from 1995-2005 the total returns for
15 the water industry have outperformed the S&P 500, the Dow Jones Index and the
16 NASDAQ. Page 1 of Attachment 2 is the 7th page (13th slide) from a presentation
17 made by California Water Service Group. Page 2 of Attachment 2 is the 12th page
18 (24th slide) from a presentation made by Southwest Water Company. Both slides
19 show that shareholder returns to the water industry exceeded returns on the S&P 500.

20 Also on page 42 of CFO magazine an article from the February 2007 issue titled
21 Water for Profit states as follows:

22 Investors are so eager to get into the space that price/earnings ratios
23 have doubled from 10 to 20 over the past two decades, as the

1 industry's 20-year returns outperform Exxon, Wal-Mart, and Home
2 Depot.

3 **PROXY GROUP**

4 **Q: Can you apply the DCF model and CAPM directly to Indiana American Water**
5 **Company?**

6 **A:** No. The DCF model and the CAPM can be applied only to companies whose stock
7 is publicly traded. Because Petitioner's stock is not publicly traded, Petitioner's cost
8 of equity must be estimated through the use of a proxy group. Ideally, I prefer to use
9 a proxy group of 6 to 10 water companies with similar operating and financial
10 characteristics, comparable size, operating in the Midwest and have available
11 financial information. These companies do not exist. Thus, one has to choose
12 between developing a proxy group with a smaller number of members or including
13 companies that are less comparable. Mr. Moul uses a proxy group of 8 water
14 utilities. I am concerned about Mr. Moul's use of Southwest Water Company.
15 Southwest Water Company earns only 39% of its revenues from regulated water
16 operations. All other members of Mr. Moul's proxy groups earn at least 85% of their
17 revenues from water operations. In past cases I have not included Southwest Water
18 Company in my water industry proxy group(s).

19 In this case I use two proxy groups for my DCF analysis and one for my CAPM
20 analysis. The first proxy group in my DCF analysis consists of the four water
21 companies covered by Value Line's Standard Universe. I will refer to this proxy
22 group as my Value Line proxy group. My second proxy group uses the same eight

1 companies used by Mr. Moul. I will refer to this proxy group as my AUS proxy
2 group or Mr. Moul's proxy group. All four members of the companies in my Value
3 Line proxy group are included in my AUS proxy group. Value Line provides a
4 greater level of data (growth rates) for the companies in its Standard Universe. Thus,
5 it is reasonable to have two proxy groups for my DCF analysis. However, because I
6 do not have the same level of data for my AUS proxy group I give it less weight than
7 my Value Line proxy group. I have the same level of detail (beta) for all eight
8 companies for my CAPM analysis and it is not necessary to divide the companies
9 into two proxy groups. My use of two proxy groups is not intended to be a criticism
10 of Mr. Moul's selection of a proxy group and I consider it to be a stylistic difference.

11 DISCOUNTED CASH FLOW ANALYSIS

12 **Q: Please describe the discounted cash flow model (DCF).**

13 A: The DCF model is used by investors to determine the appropriate price to pay for a
14 particular security. This model assumes that the price of a security is determined by
15 its expected cash flows discounted by the company's cost of equity. On a one year
16 horizon, the price of a stock (P_0) is equal to the anticipated dividends paid during the
17 year (D_1) plus the anticipated price of the stock at the end of the year (P_1) divided by
18 one plus the company's cost of equity (k). In turn, this year's year-end price (P_1) is
19 determined by next year's anticipated dividends (D_2) and next year's anticipated year-
20 end price (P_2) divided by one plus the company's cost of equity (k).

1 $P_0 = \frac{(D_1 + P_1)}{(1 + k)}$ and $P_1 = \frac{(D_2 + P_2)}{(1 + k)}$
2

3 Since investors may plan to hold securities for many periods, the DCF equation can
4 be restated for an infinite or unknown number of periods as follows:

5
$$P_0 = D_1 / (k - g)$$

6 (Where the price of a security (P_0) equals the anticipated dividends paid over the
7 current period (D_1) divided by the company's cost of equity (k) minus the expected
8 growth rate of dividends (g)).

9 The company's cost of equity must be greater than its expected dividend growth rate
10 for this model to be valid. By rearranging the model, one can obtain the familiar
11 DCF formula used in regulatory proceedings:

12
$$k = (D_1 / P_0) + g$$

13 (Where the cost of equity (k) equals the forward dividend yield (D_1 / P_0) plus the
14 expected growth rate in dividends per share (g). To estimate the cost of equity (k),
15 one must estimate the forward yield (D_1 / P_0) and the expected growth rate in
16 dividends (g)).

17 **Q: How did you calculate your forward yields (D_1 / P_0)?**

18 **A:** Before one can calculate a forward yield (D_1 / P_0), one must first calculate a current
19 yield (D_0 / P_0). AUS Utility Reports calculates current yields for large publicly held
20 utilities each month. A company's current yield equals its current annual dividends
21 (D_0) divided by its current stock price (P_0). The current annual dividend is calculated

1 by multiplying the company's most recent quarterly dividend by four. For purposes
2 of this testimony, I have used three and six month average current yields.

3 **Q: How did you convert your current yields (D_0/P_0) into forward yields (D_1/P_0)?**

4 A: I used the following equation to convert a current yield to a forward yield: $(D_1/P_0) =$
5 $(D_0/P_0) * (1 + .5g)$. For example, if company X had a current dividend yield of
6 6.0% and an expected growth rate of 4.0%, I would multiply the 6.0% current
7 dividend yield by 1 plus 2.0% or 1.02, (2.0% is one half of the 4.0% expected growth
8 rate). This would result in a forward dividend yield of 6.12% or an increase of 12
9 basis points over the current dividend yield.

10 **Q: Has the Commission supported the use of the one half years growth**
11 **methodology to convert current yields to forward yields?**

12 A: Yes. Although there is no universally accepted methodology, the one half times
13 growth methodology to convert current yields to forward yields has been regularly
14 accepted by this Commission and was affirmed in its order in Indiana American
15 Water Company Cause No. 40103, order dated May 30, 1996. In that order on
16 page 40, this Commission stated as follows:

17 We are well aware of the advantages and limitations of the
18 various approaches used by each of the witnesses. For
19 example, the half-year method used by the OUCC for
20 calculating the forward dividend yield is the most frequently
21 used approach in this jurisdiction, and it is rarely a point of
22 contention in DCF analysis. We believe that it fairly
23 represents the dividend payments expected and received by
24 investors, while the full year method employed by Petitioner
25 overstates the dividend yield.

1 **Q: How did you estimate the long run dividend growth component (g) of the DCF**
2 **model?**

3 A: The DCF model assumes that investors expect earnings per share, dividends per
4 share, and book value per share (EPS, DPS, BVPS) to all grow at the constant long
5 run growth rate (g). In order to estimate (g), I used both historical and forecasted
6 growth rates of EPS, DPS, and BVPS. I used Value Line as my primary source of
7 growth rates. I also used forecasted growth rates of earnings per share from Zacks
8 and Reuters, as well as forecasted growth rates in dividends per share from AUS.

9 **Q: What is your estimated (g) long run dividend growth component of the DCF**
10 **model for the proxy group of water companies?**

11 A: My estimate of growth is 6.11% for my Value Line proxy group and 6.67% for the
12 AUS proxy group. To estimate growth for the Value Line proxy group, I averaged
13 the forecasted and historical growth rates of EPS, DPS, and BVPS from Value Line.
14 To estimate growth for the AUS proxy group, I averaged Zacks and Reuters
15 forecasted growth in EPS and AUS forecasted growth in DPS.

16 **Q: Have you included zero and negative numbers to estimate the dividend growth**
17 **(g) for your DCF analysis?**

18 A: No. I excluded zero and negative growth figures to estimate (g) in my DCF analysis.
19 In Cause No. 40103, Indiana American Water Company, the Commission stated as
20 follows:

21 In all cases, however, the Commission expects the parties to exercise
22 sound judgment when deciding which inputs to include as part of
23 their analysis. In this case, the inclusion of negative growth rates for
24 certain earnings and book value per share data by the OUCC biased

1 the derivation of its growth rates downward. On the other hand, the
2 Petitioner's sole reliance on Value Line's 10-year dividend growth
3 rate data had the opposite effect.

4 (Final Order Cause No. 40103 – May 30, 1996, p. 41 (Emphasis in original))

5 While I eliminated zero and negative growth rates from my DCF analysis, I do not
6 believe that investors completely ignore these growth rates. While I agree that
7 investors (typically) do not expect earnings growth to be very low or negative, when
8 a company has experienced very low growth or negative growth in EPS, DPS or
9 BVPS that will likely reduce the investor's future growth expectations.

10 **Q: Why haven't you eliminated low (positive) growth rates from your DCF**
11 **analysis?**

12 A: Low growth rates are not ignored by the investor. While investors may not expect
13 low growth rates to occur (especially in perpetuity), if a company has experienced
14 low historical growth rates and/or is forecasted to experience low growth rates, those
15 low growth rates will be considered by investors when they estimate that company's
16 future growth rate. One has to remember our purpose in estimating a growth rate in
17 the DCF model. We are trying to derive the investor's long term (perpetual) forecast
18 in growth of the company. Relevant factors should not be ignored. Moreover, if one
19 is going to eliminate low positive growth rates, then it is also appropriate to eliminate
20 high positive growth rates too. However, at this time in the water industry we have
21 seen a divergence in historical and projected growth rates. In my analysis only a
22 small number of the growth rates are within 200 basis points of the mean. Thus, if
23 one eliminates all of the growth rates that one might consider either too high or too

1 low, there would not be enough data points to effectively estimate the water
2 industry's cost of equity. While many of the individual growth rates I have used, by
3 themselves, would not produce a reasonable result, in aggregate my proposed growth
4 rates are reasonable, produce a reasonable estimate of water industry growth, and are
5 in fact higher than the growth rates I presented in Petitioner's last rate case (5.15%
6 and 5.24% E. Kaufman Schedule 2 page 1 of 3 and page 3 of 3).

7 **Q: Do you have any additional data to support the reasonableness of the growth**
8 **rates used in your DCF analysis?**

9 A: Yes. Value Line publishes a chart titled "A Long Term Perspective Dow Jones
10 Industrial Average, 1920 – 2005" (Quarterly Price Range) which provides average
11 growth rates in EPS (5.3%), DPS (4.9%), and BVPS (5.2%) (Attachment 3). Thus,
12 the average growth rates of EPS, DPS and BVPS for the Dow Jones Industrial
13 Average each averaged less than 6.0% over the last 85 years. The Value Line chart
14 helps to support my use of growth rates in the 6%-6.67% range in my DCF analysis.

15 **Q: Can short to intermediate term forecasts lead to unreasonably high estimated**
16 **growth rates (g) in a DCF analysis?**

17 A: Yes. First, intermediate term forecasts are not long term forecasts and should not
18 blindly be incorporated into a DCF analysis. Whatever growth rate is used in a DCF
19 analysis is one that must be sustainable for many years. Thus, even if intermediate
20 term forecasts are accurate, they may not be reliable long term forecasts of the
21 company's sustainable growth. Secondly, there are well documented findings that
22 forecasted growth rates in EPS (by analysts) tend to be optimistic. An article

1 published in the National Regulatory Research Journal (NRRI) of Applied Regulation
2 supports both of my concerns about using unreasonably high growth rates in a DCF
3 analysis.² On page 98 the article states as follows:

4 Financial research has made it clear that no company can sustain a
5 growth rate over the long run that exceeds the growth rate of the
6 economy.¹⁵ Since 1959 the long-term sustainable real growth rate in
7 the economy has been about 3.5%.¹⁶ If long-term inflation is expected
8 to be about 2.5%, the maximum long-term sustainable nominal growth
9 for any company today is about 6.0%. Since utilities are amongst the
10 slowest growing firms in the economy, a utility today would be
11 expected to have a long-term sustainable growth rate that is
12 significantly below 6%.

13 The article also states as follows:

14 The other problem with using analyst forecasts as the long-term
15 growth rate in the DCF model is such forecasts are biased to the
16 upside. The evidence on this issue is overwhelming.¹⁷ The forecast
17 bias persists year after year in large part due to the incentive
18 structures in place at many Wall Street firms that tend to reward more
19 optimistic projections and to discourage the incorporation of
20 potentially negative views in analysts' forecasts.¹⁸

21 Emphasis added, (Citations included at the end of my testimony).

22 The Wall Street Journal also published an article on January 27, 2003 titled Analysts:
23 Still Coming up Rosy. A copy of this article is included as Attachment 4. The article
24 discusses how despite a \$1.5 billion settlement pending with regulators over stock
25 research-conflicts, analysts are unshaken in their optimism that most of the
26 companies they cover will have above average double-digit growth rates during the

2. How improper Risk assessment leads to overstated required returns for utility stocks by Steven G. Kihim
NRRI Journal of Applied regulation-Volume 1, June 2003.

1 next several years. The article asserts that such growth is unlikely and states as
2 follows:

3 Historically, growth in corporate earnings has slightly lagged nominal
4 growth in gross domestic product. In other words, profits can only
5 grow as fast as the economy. Right now, optimistic Wall Street
6 analysts expect earnings to defy history and grow far faster than that.

7 And:

8 Those overly optimistic growth estimates also show that, even with
9 all regulatory forces on too-bullish analysts allegedly influenced by
10 their firms' investment-banking relationships, a lot of things haven't
11 changed: Research remains rosy and many believe it always will.

12 The concern regarding bias in analyst forecasts is also mentioned in The real cost of
13 equity by Marc H. Goedhart, Timothy M. Koller and Zane D. Williams (McKinsey
14 Quarterly). The article states as follows:

15 Some theorists have attempted to meet this challenge by surveying
16 equity analysts, but since we know that analyst projections almost
17 always overstate the long-term growth of earnings or dividends,²
18 analyst objectivity is hardly beyond question.

19 (Citations included at the end of my testimony).

20 One needs to keep in mind both the potential for analyst bias and the intermediate
21 term nature when using analyst forecasts of EPS to estimate growth in a DCF
22 analysis. I think the Zacks' forecasts of EPS for the water industry provide a good
23 example of forecasted growth rates that should be given little weight in a DCF
24 analysis. The companies in my AUS proxy group (Schedule E. Kaufman 2, page 3 of
25 3) each has an estimated growth rate at or above 8.0% (and an average of 9.27%).

1 Even if there is no analyst bias in these figures, a long term growth rate of 9.27% is
2 not sustainable over the long term and should be given little weight.

3 **Q: What do you conclude from your DCF study?**

4 A: The results of my DCF analysis ranges from 8.45% to 9.36%. My DCF analysis is
5 based on dividend yields ranging from 2.27% - 2.61% combined with estimated
6 dividend growth rates ranging from 6.11% to 6.67% (See Schedule 2). However, as
7 mentioned earlier in my testimony, for my DCF analysis, I give more weight to my
8 Value Line analysis because it is based on a broader review of growth rates. The
9 growth rate derived from my AUS proxy group relies too heavily on intermediate
10 term forecasted growth rates in EPS. As discussed above the analyst forecasts of
11 intermediate term growth rates in EPS are upwardly biased as long term estimates of
12 growth (g) in a DCF analysis.

13 **CAPM ANALYSIS**

14 **Q: Please describe your CAPM analysis.**

15 A: The CAPM is a form of risk premium analysis used to estimate the cost of capital.
16 The CAPM is based on the premise that investors require a higher return for
17 assuming additional risk. Total risk is divisible into two categories, systematic risk
18 and unsystematic risk. Unsystematic risk is that risk which is unique to the company
19 and may include strikes, management errors, merger activity, or individual financing
20 policy. Systematic risk is that risk that affects the entire market and includes
21 inflation, monetary policy, fiscal policy, or politics.

1 Investors can eliminate unsystematic risk through diversification. Because returns of
2 individual securities of a portfolio do not usually move in the same direction at the
3 same time, the total risk of a portfolio is less than the risk of the individual securities
4 that make up the portfolio. Because investors can eliminate unsystematic risk
5 through diversification, the market does not compensate investors for assuming
6 unsystematic risk. Conversely, systematic risk, sometimes referred to as market risk,
7 cannot be eliminated through diversification. However, since investments will move
8 with different relationships to the market, investors can form a portfolio to assume
9 any amount of market risk that he wishes. The returns an investor requires depends
10 on the market risk that the investor is willing to assume.

11 **Q: How is systematic (market) risk measured?**

12 A: Beta is the measurement of an investment's relationship to the market. More
13 specifically, beta measures an asset's price volatility compared to the market. By
14 definition, the market has a beta of one. The market refers to the returns on all assets.
15 Since it is very difficult to measure the return on all assets, analysts typically rely on a
16 market index such as the Standard & Poors' 500 index as a proxy for the market.
17 Assets more volatile than the market will have a beta greater than one and, thus, they
18 are considered riskier than the market. Similarly, assets that are less volatile will
19 have a beta less than one, and thus, are considered less risky than the market.

1 The CAPM formula can be stated as follows:

2 $K = Rf_c + B*(Rm - Rf)$ where,

3 $K =$ Cost of Equity

4 $Rf_c =$ Current Risk Free Rate of Return

5 $B =$ Beta

6 $Rm - Rf =$ Expected Market Equity Risk Premium

7 $Rm =$ Market Equity Return

8 $Rf =$ Risk Free Rate of Return

9 The return on an asset (K) equals the risk-free rate of return (Rf_c) plus its beta (B)
10 multiplied by the market equity risk premium ($Rm - Rf$). The market equity risk
11 premium equals the market equity return minus the risk-free rate of return.

12 **Q: What is your opinion of the CAPM?**

13 A: I consider the CAPM to be typically more controversial and less reliable than the
14 DCF model. Different applications of CAPM may cause vastly different cost of
15 equity estimates. For example, the source of beta can have a significant influence on
16 the results of a CAPM analysis. The average beta for the AUS proxy groups using
17 Value Line betas is .813, while the average unadjusted beta using Reuters' betas is
18 .475. If one relies on a market risk premium of 5.0%, a difference in beta of .328
19 changes the results of a CAPM analysis by 164 basis points. If one uses a market
20 risk premium of 6.86%, as Mr. Moul does (Appendix H page H4), a difference in
21 beta of .328 changes the results of a CAPM analysis by roughly 225 basis points.
22 (The difference between Mr. Moul's estimate of Petitioner's cost of equity and my
23 estimate is 275 basis points.)

1 Next, estimating the market risk premium can be particularly controversial. An
2 historical risk premium can be calculated, but the measurement of historical returns
3 introduces the controversy of the use of geometric mean calculation versus the
4 arithmetic mean calculation. The use of the arithmetic mean typically produces
5 results that are 100 to 120 basis points higher than the geometric mean calculation.
6 Selecting the appropriate time period to calculate an historical risk premium is not
7 only controversial, but dramatically affects the results. If one relies on an historical
8 risk premium, the longest historical period for which accurate historical data exists
9 should be used to estimate a risk premium. I believe the geometric mean calculation
10 is preferable over the arithmetic mean calculation because the geometric mean
11 calculation more accurately measures the change in wealth over multiple periods.
12 Moreover, there is growing evidence that historical data overstates the risk premium
13 and that one should rely on a forecasted risk premium. As discussed later in my
14 testimony, several forecasted market risk premiums range between 2.4% and 4.0%.
15 This is far below the historical risk premiums of 5.0% (geometric – long term bonds)
16 to 6.5% (arithmetic - long term bonds).

17 **Q: In your CAPM analysis did you use a geometric mean risk premium or an**
18 **arithmetic mean risk premium?**

19 A: If one relies on historical returns, I believe the geometric mean is a better
20 representation of expected returns than the arithmetic mean. However, both
21 calculations can provide meaningful insight to estimate the market risk premium for a
22 CAPM analysis. Thus, my CAPM analysis considers both geometric and arithmetic

1 mean risk premiums. I also perform a second CAPM analysis that uses a forecasted
2 market risk premium.

3 **Q: Utility analysts often cite to Roger Ibbotson's SBBI year book(s) to support**
4 **their view that the arithmetic mean calculation should be used exclusively to**
5 **estimate cost of equity. In the past has Roger Ibbotson's SBBI year book**
6 **supported the use of both the geometric and arithmetic mean risk premium to**
7 **employ a CAPM analysis?**

8 A: Yes, it has. On page 59 of the 1982 Edition of Stocks, Bonds, Bills and Inflation:
9 The Past and the Future Ibbotson stated as follows:

10 The arithmetic mean historical return on a component is used in
11 making one-year forecasts, since the arithmetic mean accurately
12 represents the average performance over a one-year period. Over a
13 long forecast period, however, the geometric mean historical return
14 represents average performance over the whole period (stated on an
15 annual basis). Therefore, we input the arithmetic mean for a one year
16 forecast, **the geometric mean for the twenty year** forecast and
17 intermediate values for two, three, four, five and ten year forecasts.

18 (Emphasis added)

19 While more current editions of Stocks, Bonds, Bills and Inflation yearbook advocate
20 the use of only the arithmetic mean, I have not been able to find an explanation for
21 the change. Moreover, as explained later in my testimony Dr. Ibbotson has recently
22 expressed concerns about using historical data to estimate a market risk premium.

23 **Q: Are you aware of any financial texts that advocate the use of a geometric mean**
24 **calculation in a CAPM analysis?**

25 A: Yes. In VALUATION Measuring and Managing the Value of Companies (Second
26 Edition) by Tom Copeland, Tim Koller and Jack Murrin pages on 260 – 261 the text

specifically advocates the use of the geometric mean over the arithmetic mean to estimate cost of equity in a CAPM analysis:

We recommend using a 5 to 6 percent market risk premium for U.S. companies. This is based on the long-run geometric average risk premium for the return on the S&P 500 versus the return in long term government bonds from 1926-1992.⁴ Since this is a contentious area that can have a significant impact on valuations, we elaborate our reasoning in detail here.

We use a very long time frame to measure the premium rather than a short time frame to eliminate the effects of short-term anomalies in the measurement. The 1926-1992 time frame reflects wars, depressions and booms. Shorter time periods do not reflect as diverse a set of economic circumstances.

We use a **geometric average** of rates of return because **arithmetic averages are biased** by the measurement period. An arithmetic average estimates the rates of return by taking a simple average of the single period rates of return. Suppose you buy a share of nondividend-paying stock for \$50.00. After one year the stock is worth \$100. After two years the stock falls to \$50 once again. The first period return is 100 percent; the second period return is -50 percent. The arithmetic average return is 25 percent $[(100 \text{ percent} - 50 \text{ percent}) / 2]$. The geometric average is zero. (The geometric average is the compound rate of return that equates the beginning and ending value.) (sic) We believe **the geometric average** represents a **better estimate of investors' expected return** over long periods of time.

Finally, we calculate the premium over *long-term* government bond returns to be consistent with the risk free rate we use to calculate the cost of equity.

(Citation included at end of my testimony) Italics emphasis in original. Bolded emphases added.

The text further states on page 263 as follows:

Note that the arithmetic return is always higher than the geometric return and that the difference between them becomes greater as a function of the variance of returns. Also the arithmetic average depends upon the interval chosen. For example, an average of monthly returns will be higher than an average of annual returns.

1 The geometric average, being a single estimate for the entire time
2 interval, is invariant to the choice of interval. Finally, empirical
3 research by Fama-French (1988), Lo and MacKinlay (1988), and
4 Poterba and Summers (1988) indicates that a significant long-term
5 negative autocorrelation exists in stock returns.⁵ Hence, historical
6 observations are not independent draws from a stationary
7 distribution.

8 (Citation included at end of my testimony)

9 On pages 259-260 of the text, the authors specially recommend using the 10-year
10 Treasury bond rate. Finally, in the chart displayed on page 261, the text shows risk
11 premiums based on the arithmetic average and the geometric average. Although not
12 explicitly stated in the text, both calculations are based on total bond returns and not
13 income returns.

14 **Q: Please continue.**

15 A: The text Analysis of Equity Investments: Valuation also supports the use of the
16 geometric mean to estimate the market risk premium. On page 50 the text states as
17 follows:

18 Although the debate is inconclusive, this book uses the geometric
19 means, not only for the previously given reasons but also because
20 geometric means produce estimates of the equity risk premium that
21 are more consistent with the predictions of economic theory.¹⁴

22 (Citation included at the end of my testimony)

23 Analysis of Equity Investments: Valuation is written by the Association for
24 Investment Management and Research and is produced as a study guide for the
25 Chartered Financial Analyst (CFA) program.

1 Also, in a presentation made at SURFA's 39th Financial Forum (April 19-20th, 2007)
2 Professor Aswath Damodaran printed presentation asserted: If you choose to use
3 historical premiums... Use the geometric risk premium. It is closer to how investors
4 think about risk premiums over long periods.

5 **Q: How has this Commission ruled on the issue of arithmetic mean premiums**
6 **versus geometric mean risk premiums?**

7 A: For more than 14 years this Commission has consistently given weight to both the
8 arithmetic mean risk premium and the geometric mean risk premium. See p.12 of the
9 Peoples Gas and Power Company Order in Cause No. 39315 Order dated October 21,
10 1992:

11 As in the Indiana Cities case, [Cause No. 39166, July 8, 1992] we
12 find there is merit in using both the arithmetic and geometric means
13 and that neither result should be relied upon to the exclusion of the
14 other.

15 This Commission also reaffirmed its position in Indiana American Water Company,
16 Cause No. 40103, Order dated May 30, 1996. On page 41 of that Order this
17 Commission stated as follows:

18 The debate over the proposed use of the arithmetic and geometric
19 means is one we consider **resolved**. As we stated in Indianapolis
20 Water Company, Cause No. 39713-39843, each method has its
21 strengths and weaknesses, and neither is so clearly appropriate as to
22 exclude consideration of the other.

23 (Emphasis added)

24 **Q: In addition to using historical data to estimate a risk premium do you also**
25 **utilize forecasted information?**

26 A: Yes. In previous cases (Cause Nos. 42520 and 42359) I expressed concerns about
27 relying exclusively on historical data to estimate a risk premium. The volume of

1 articles that forecast a market risk premium less than the historical average has
2 become too numerous for me to ignore. Recent articles that cite Roger Ibbotson's
3 opinion on the use of forecasted market risk premiums also persuaded me that it was
4 now time to include a forecasted risk premium in my CAPM analysis.

5 **Q: Please discuss why you develop a forecasted risk premium in addition to a risk**
6 **premium based on historical data?**

7 A: As I mentioned above there is growing evidence that risk premiums based on
8 historical data overstate expected returns. When historical equity returns are
9 generated from increasing valuations, it increases the historical earned return, but
10 decreases the prospective return. On page 16 from Global Economics Paper No. 120,
11 Thoughts on Social Security Reform by Goldman Sachs (January 18, 2005) the
12 article states as follows:

13 Moreover, even abstracting from the issue of risk, the historical
14 returns on bonds and equities substantially overstate what investors
15 could expect on a forward looking basis. This is because the rise in
16 bond and equity prices in recent decades has boosted historical
17 returns, but it has also resulted in high bond and equity valuations that
18 imply lower prospective returns in the future.

19 And:

20 Why is the expected rate of return for equities so low relative to
21 historical returns? In evaluating the high rate of returns on equities
22 historically, it is important to distinguish between returns generated
23 by rising dividends and earnings versus the returns generated by
24 higher valuations (i.e. a rise in price/earnings multiples). A good
25 portion of the high rate of return earned by equities over the past
26 century has been due to a rise in equity market valuation. When
27 equity valuations are rising, equity returns are usually high. However,
28 the increase in equity valuation reduces, rather than raises
29 prospective equity return by reducing the dividend return on equities.

30 Emphases added

1 Although not a perfect apples to apples comparison, it might be easier to explain how
2 increasing historical returns can lead to declining forecasted returns by looking at a
3 hypothetical bond. Assume this hypothetical bond is a risk-free bond issued at a
4 hypothetical current market rate of 7.0% for 20 years. Now assume that the bond is
5 sold after five years, but the required return on a current risk-free bond of 15 years
6 (equal to the remaining life on our original bond) has declined to 5.0%. Because of
7 the decline in interest rates, when the bond is sold the original bond holder will be
8 able to sell his bond at a premium and will have earned a return well in excess of his
9 original required return of 7.0%. Yet since the current required return on a 15 year
10 risk free bond is 5.0%, it would be improper to use the original investor's actual
11 earned return (which exceeds 7.0%) to estimate future required returns for
12 bondholders. Rather, due to the decline in required return the historical earned return
13 indicates a higher return during a period of decreasing required returns. Because
14 returns are stated for bonds it is easier to visualize how changes in valuations can
15 cause a divergence between historical returns and prospective returns. However, the
16 same concept can apply to stocks as well as bonds. For example CNNMoney.com's
17 article: 9% Forever? (December 26, 2005) by Justin Fox discusses and quotes Eugene
18 Fama as follows (See Attachment 5):

19 A harder to dismiss critique came from Mr. Efficient Markets
20 himself, Ibbotson's dissertation advisor Eugene Fama. In a series of
21 papers written with Dartmouth's Kenneth French, Fama has argued
22 that the capital asset pricing model, or at least its 1970's corollary that
23 the risk premium is constant doesn't match the facts. "My own view
24 is that the risk premium has gone down over time basically because
25 we have convinced people that it's there." Fama says. Ibbotson's
26 stock market forecasting model is thus a victim of its own success.

1 **Ibbotson agrees** that Fama has a point, and that **he can no longer**
2 **bank on the historical equity premium to predict the future.**

3 **Emphases added**

4 This is important. Even Roger Ibbotson has now expressed concerns about using
5 historical data to estimate the risk premium.

6 **Q: Are there other articles or texts that support the view that historical data**
7 **overstates the market risk premium?**

8 **A: Yes. There are several.**

9 Building the Future from the Past by **Roger Ibbotson** (June 2002) forecasts an equity
10 risk premium of **less than 4.0%** (Attachment 6).

11 The Equity Premium by **Eugene F. Fama and Kenneth R. French** (April 2001) The
12 Abstract to their paper states as follows “We estimate the equity risk premium using
13 dividend and earnings growth rates to measure the expected rate of capital gain. Our
14 estimates for 1951-2000 **2.55% and 4.32%** are much lower than the equity premium
15 produced by the average stock return, 7.43%. Our evidence suggests that the high
16 average return for 1951-2000 is due to a decline in discount rates that produces large
17 unexpected capital gains. Our main conclusion is that the stock market return of the
18 last half-century is a lot higher than expected.”

19 Equity Risk Premium as Low as Three Percent? by James Claus and Jacob Thomas,
20 Journal of Finance (October 2001) Subtracting 10-year risk free rates from these
21 estimated discount rates suggests that the equity risk premium is only about three
22 percent.²

23 Investment Survival in a Single Digit World – Portfolio Solutions by Richard A.
24 Ferri, CFA (November 19, 2001) analysis implies a market risk premium for Large
25 stocks over Long term US Treasury bonds of **3.0%**.

26 Stock returns for a New Century by John Campbell (Professor of Applied
27 Economics, Harvard University) (June 2002) forecasts an equity risk premium of
28 **1.5% to 2.0%** (Attachment 6).

29
30 The Real Cost of Equity by Marc H. Goedhart, Timothy M. Koller and Zane D.
31 Williams of McKinsey Quarterly (October 2002) asserts as follows “The inflation-
32 adjusted cost of equity has been remarkably stable for 40 years, implying a current
33 equity risk premium of **3.5 to 4 percent.**”

1 CEO Confidential The Equity Risk Premium: Its Lower than You Think (November,
2 2002) published by Goldman Sachs estimates an equity risk premium for the United
3 States of **2.3%**.

4 Corporate Finance: New evidence puts risk premium in context by Elroy Dimson,
5 Paul Marsh, and Mike Stauton (London Business School) (March 2003) forecasts a
6 geometric equity risk premium of **2.5% to 4.0%** and an arithmetic mean risk
7 premium of around **3.5% to 5.25%**. The article notes that these estimates are lower
8 than historical premia quoted in most text books and surveys of market professionals.

9 The Equity Risk Premium – Part 2 – Investopedia.com by David Harper (February 4,
10 2004) estimates an equity risk premium of **1.5% to 2.5%**.

11 Thoughts on Social Security Reform by Goldman Sachs (January 18, 2005) discusses
12 the assumptions used by the US Government to discuss Social Security reform. Page
13 22 of the article states as follows: "The Commission assumed that personal accounts
14 would earn real returns of 6.5% on equities, 3.5% on corporate bonds and 3% on
15 Treasury Bonds." This implies a risk premium of **3.5%**. Note the Goldman Sachs
16 article asserts that the "Return Assumptions are Too High".

17 Investors are in for a Shock published by CNN.Money (November 28, 2005)
18 forecasts an equity risk premium of **2.4%**.

19 What's ahead for Stocks and Bonds – And How to Earn Your fair Share by John C.
20 Bogle (Founder and former Chairman, The Vanguard Group) (May 15, 2006)
21 estimates the annualized return on stocks for the next 10 years is 8.0% and that the
22 annualized return on US Treasury 10 year bonds for the next 10 years is 5.1%. This
23 implies an equity risk premium of **2.9%**.

24 Capital Market Outlook – Investment Strategies Group by Banc of America
25 Investment Advisors (October 2, 2006) uses a market risk premium **3.5%** to forecast
26 long term market returns for large company stocks.

27 Survey of Profession Forecasted by Federal Reserve Bank of Philadelphia (February
28 13, 2007) estimates the return on stocks, over the next ten years to be 7.5% and the
29 return on 10 year US Treasury bonds to be 5.0%. These estimates imply a risk
30 premium **2.5%**.

31 The articles I list above support the opinion that the expected risk premium is well
32 below the historical averages. The number and variety of articles demonstrates that
33 this opinion has become mainstream. Even Roger Ibbotson, one of the most

1 respected providers of historical data typically used to estimate a historical risk
2 premium, no longer supports a risk premium that relies exclusively on historical data.
3 Based on the articles above, it is appropriate to consider the results of a CAPM
4 analysis that relies on a forecasted risk premium instead of one that exclusively relies
5 on historical data to estimate cost of equity. My testimony includes additional
6 discussion about forecasted risk premiums in my analysis of Mr. Moul's testimony.

7 **Q: What forecasted market risk premium have you used in your CAPM analysis?**

8 A: The articles cited above provide a range of forecasted market risk premiums from a
9 low of 1.5% to a high of 5.25%. Based on the sources cited above I believe a
10 forecasted risk premium of 4.25% is reasonable.

11 **Q: Do you have any additional sources that support your proposed forecasted risk**
12 **premium of 4.25%?**

13 A: Yes. In a presentation made at the 39th Financial Forum held by the Society of Utility
14 and Regulatory Financial Analysts titled: Equity Risk Premiums: Looking backwards
15 and forwards... by Professor Aswath Damodaran (April 20, 2007) he estimated that
16 the current forecasted risk premium was 4.16% (Attachment 7 includes pages 1, 14,
17 16 and 17 of his presentation).

18 At the same seminar in a presentation titled Revisiting the Equity Risk Premium,
19 Associate Professor Felicia C. Marston concluded that the "Ex ante risk premium on
20 utilities (using dividend growth model) was estimated at 4.15%."

1 **Q: Is the risk free rate of return also controversial?**

2 A: Yes. Aside from the market risk premium controversy, financial analysts do not
3 agree on the determination of the risk free rate. Theoretically, the risk-free rate is the
4 rate of return on a completely risk free asset. In practice, analysts typically use yields
5 on United States Treasury Securities as a proxy for the risk-free rate. One could use
6 the yield on 91-day Treasury Bills as a proxy for the theoretical risk free rate of
7 return. However, the volatility of 91-day Treasury Bill rates has led many analysts to
8 use longer term Treasury instruments as an estimate of the risk free rate. Given the
9 degree of controversy surrounding the application of the CAPM, I have more
10 confidence in the results of my DCF analysis.

11 **Q: How did you estimate the risk free rate?**

12 A: Due to the controversy surrounding the selection of the appropriate risk free rate, I
13 have reviewed short, intermediate and long term risk free rates. I used one year
14 Treasury securities as an estimate of short term yields, the average of five year and
15 ten year Treasury securities as an estimate of intermediate term yields, and 30-year
16 Treasury securities as an estimate of long term yields. Although I reviewed short
17 term, intermediate term and long term interest rates, I give most of my emphasis to
18 long term interest rates, some of my emphasis to intermediate term interest rates and
19 no emphasis to the results generated from the use of short term interest rates.

1 **Q: In your CAPM analysis, did you use spot interest rates or average interest**
2 **rates?**

3 A: I have not used spot interest rates. In my analysis I used both 3 month and 6 month
4 average yields. In my opinion it is more appropriate to use an average yield
5 calculated over a reasonable period of time, than to rely on spot data. This
6 Commission's determination of Petitioner's cost of equity should not gyrate on every
7 twist and turn in the market but should reflect more of a long term perspective.
8 However, to reflect current market conditions one must also be careful not to use data
9 that is too old or too stale. I believe, at this time, the use of 3 month and 6 month
10 average yields strikes a reasonable balance of using current data while not relying on
11 data that has become stale.

12 **Q: How did you estimate the value of beta?**

13 I reviewed beta estimates for the companies in Mr. Moul's proxy groups from Value
14 Line, Reuters, SmartMoney.com and NASDAQ.com (Betas are provided on pages 3
15 of Schedule 3). I am not as confident in Value Line betas as I used to be and have
16 concerns about relying exclusively on Value Line betas to perform a CAPM analysis.
17 These concerns are discussed in detail later in my testimony. Since there is not one
18 definitive calculation used to estimate beta and different calculations can result in
19 dramatically different estimates, I reviewed other sources of beta. Reuters,
20 Smartmoney.com and NASDAQ.com produced water company betas that were
21 different than the Value Line beta. In my analysis I have given Value Line's beta
22 50.0% of the weight and the other sources of beta 50.0% (16.67% each) of the
23 weight. This results in an average beta of 0.738.

1 **Q: Value Line uses adjusted beta. Do the other sources you cite adjust their betas?**

2 A: To the best of my knowledge they do not. However, according to a text book I used
3 in college the equation that Value Line uses to adjust beta is (Adjusted beta = $0.35 +$
4 $0.67 * \text{Raw beta}$).³ So that one can compare Value Line's betas to the other sources of
5 betas I have applied this equation to the betas from Smartmoney.com, Reuters and
6 NASDAQ (Exhibit 3, page 3 of 6 for betas and their source).

7 **Q: Why do different sources of betas provide different results?**

8 A: Different sources of beta use different calculations. Changing the calculation
9 changes the result. For example, some sources use five years worth of data while
10 others use three years. Some sources use monthly data, while others use weekly data.
11 Value Line compares returns to the NYSE, while some other sources compare returns
12 to the S&P 500. Each decision can influence the result. Since there is no one
13 definitive way to calculate beta, it is reasonable to look at more than one source.

14 **Q: What is the basis for your concerns about Value Line's calculation of beta?**

15 A: First, I read the testimony of Dr. Steve Brown in Docket 06-00290 Tennessee-
16 American Water Company. Dr. Brown is an economist for the Consumer Advocate
17 and Protection Division of the Tennessee's Attorney General's Office. Dr. Brown
18 argues that Value Line's betas are biased upward. To support his opinion Dr. Brown
19 performed a distribution analysis on Value Line's betas, which found as follows
20 (Page 41, lines 21-35):

3. Investment Analysis and Portfolio Management, Second Edition by Frank Reilly page 631.

1 More than 60% of Value Line's betas are at or above the market's
 2 beta of 1, and less than 40% of the companies are less risky than the
 3 market beta. The average beta value is 1.10. The maximum beta is
 4 2.85. The minimum beta is .35. In his testimony Dr. Vilbert
 5 mentioned a "stock with a beta of 0.5." This is a rare value in Value
 6 Line, only six betas have a value of .5 or below. All of these numbers
 7 confirm that Value Line's betas are biased upward, making every
 8 company appear more risky than it is when compared to the market
 9 and raising Dr. Vilbert's estimated cost of equity in Tennessee.

10 Dr. Brown's analysis led me to question the accuracy of Value Line's calculations of
 11 betas.

12 **Q: Did you perform your own independent analysis to verify the results of Dr.**
 13 **Brown's analysis?**

14 A: Yes. I was able to replicate his analysis with current data from Value Line and
 15 produced similar results. My analysis produced a range of betas from 0.30 to 2.95.
 16 The average beta was 1.0898. Also 40.7% of the companies had a beta below 1.0
 17 and 59.3% of the companies had a beta at or above 1.00 (50.1% had a beta above 1.0
 18 and 8.3% had a beta of 1.0). The results of my analysis are provided on Schedule 3
 19 page 5 of 5.

20 **Q: Is Dr. Brown's testimony the only reason for your reservations regarding Value**
 21 **Line Betas?**

22 A: No. There has been a dramatic increase in Value Line's betas for companies in Mr.
 23 Moul's water company proxy groups.

24		PRM-2	E. Kaufman
25		(Schedule 3 page 2 of 2)	(Schedule. 3 page 3 of 6)

26	American States	.75	.80
27	Aqua America	.80	.90
28	California Water	.80	.90
29	Connecticut Water	.80	.90
30	Middlesex Water	.80	.85

1	SJW	.70	.70
2	Southwest Water	.70	.90
3	York Water	.45	.55

4 Thus, over the last six to nine months every water company (except SJW) included in
5 Mr. Moul's proxy group has experienced an increase in its beta of at least .05. Five
6 of the companies have experienced an increase of at least 0.10 including one which
7 has experienced an increase of .20. Over virtually the same period of time, dividend
8 yields for the proxy groups increased by only 10-20 basis points. If there was a
9 measurable increase in water utility risk (as indicated by the increase in beta), one
10 would also expect to have seen a decrease in price and an increase in dividend yield.
11 This did not happen. Thus, I have not seen a good explanation for why (Value
12 Line's) water utility betas have increased across the board over the last six months.

13 **Q: What are your conclusions regarding Value Line's betas?**

14 A: Value Line is still a well recognized source of beta. But, even if Value Line's betas
15 are not upwardly biased, it is reasonable to review other sources of beta and Value
16 Line betas should not be relied to the exclusion of all other sources of beta. Thus, to
17 estimate beta my analysis gives 50.0% of the weight to Value Line's betas and 50.0%
18 (or 16.67% each) the other sources of beta.

19 **Q: Please review the results of your CAPM studies.**

20 A: The results of my CAPM analysis can be seen on Schedule 3. The cost of equity
21 based on my CAPM analysis that use a historical risk premium ranges from 8.97% to
22 9.02%. The results of my analysis that use a forecasted risk premium range from

1 7.71% to 7.91%. However, I give more weight to my CAPM analysis that is based
2 on historical data.

3 To estimate cost of equity, using a historical risk premium, I calculated both a
4 geometric mean risk premium and an arithmetic mean risk premium. I then averaged
5 the risk premiums and combined the risk premiums with the risk free interest rates
6 described above. Since I used one proxy group, this analysis produced four distinct
7 CAPM results. I used both three and six month average interest rates (obtained from
8 Value Line's Selections and Opinion) to estimate the risk free rates. To estimate cost
9 of equity with a forecasted risk premium, I combined a risk premium of 4.25% (as
10 described above) with the same risk free rates. Again, since I have used one proxy
11 group, this analysis produces four additional CAPM results.

12 RECOMMENDATIONS

13 **Q: Please explain your estimation of Petitioner's cost of equity.**

14 A: My DCF analysis ranges from 8.45% to 9.36% and my CAPM analysis ranges from
15 7.71% to 9.02%. The midpoint of my 7.71% to 9.36% range is 8.54%, but I believe
16 this figure is too low. As I discussed earlier, I believe it is appropriate to give more
17 weight to both the Value Line DCF analysis (low end of the DCF range) and my
18 CAPM analysis based on historical risk premiums (high end of my CAPM range)
19 because these two models appear to be the most consistent with past Commission
20 orders. This narrows my overall range to 8.45% to 9.02%. I believe that Petitioner's
21 cost of equity is near the midpoint of that range and I recommend a cost of equity of
22 8.75%.

1 **Q. In today's market is an 8.75% cost of equity reasonable?**

2 A: Yes. As discussed earlier in my testimony, lower inflation rates translate directly into
3 lower capital costs. This holds true for both the cost of debt and the cost of equity.
4 Over the last 16 years, inflation has not been greater than 3.4% and has averaged
5 2.6% (Ibbotson's 2007 SBBI Yearbook, page 327).

6 Significantly, this trend is expected to continue for some time. Indeed Value Line's
7 Ratings and Reports (February 23, 2007; Attachment 8) forecasts that the CPI will
8 range between 2.3% - 2.5% over the next five years and that the GDP Deflator will
9 range between 2.1% - 2.3%. In its Survey of Professional Forecasters, the Federal
10 Reserve Bank of Philadelphia (February 13, 2007) forecasts an even longer period of
11 low inflation rates, estimating that inflation will average 2.35% over the next 10
12 years (Attachment 1). The Congressional Budget Office (CBO), The Budget and
13 Economic Outlook: Fiscal Years 2008 to 2017 (January 2007) provides economic
14 projections for calendar years 2008 through 2018. The CBO projects an annual
15 increase in the Consumer Price Index of only 2.2% per year for the years both 2009-
16 2012 and 2013-2017. The CBO report also forecasts an increase of only 1.8% per
17 year in the GDP Price Index over the same periods.⁴

18 More importantly, these predictions and concerns bear directly on these proceedings.
19 Because a low inflation rate has a significant influence on current capital costs, such
20 effects must be recognized and included in any determination of Petitioner's cost of

4. <http://cbo.gov/showdoc.cfm?index=7731&sequence=0>

1 equity. For any investment the investor's required return includes compensation for
2 anticipated inflation. When anticipated inflation is lower, so is the required cost of
3 equity. Because we are in an inflation environment that is not like what we have seen
4 over most of the last 35-40 years it is not unreasonable to estimate a cost of equity
5 that is lower than what we have seen in many years.

6 **Q: Do you have additional support for the reasonableness of your proposed cost of**
7 **equity?**

8 A: Yes. In its Winter 2007 Quarterly Survey Duke University surveyed CFO's for each
9 company in the S&P 500 their estimate of returns for the S&P500 for the next ten
10 years. The average result is 8.12%. (Attachment 9)

11 An article entitled Son, Don't Count On Double-Digit Stock Returns which appeared
12 in the June 26, 2000 edition of Business Week web page, refers to a study performed
13 by Eugene Fama and Kenneth French. According to the article:

14 Fama and French argue that over the long run, stocks are likely to out
15 perform risk free debt by only 3% to 3.5% a year.

16 Fama and French estimate that in the future, stocks will return to
17 more like their pre 1950 norm. Says French: "We're saying that if
18 you're a pension fund, you ought to pencil in returns of **3% to 3.5%**
19 **[above the risk free rate] for the next 30 years.**"

20 However, if you're a 30-year old who's not saving much because
21 you're relying on making returns just as profitable as those in the past
22 decades from now until you retire, think again—or you just might end
23 up living on dog food and government cheese.

24 **Emphasis added**

1 While this article is somewhat dated, a risk premium of 3.0% to 3.5% is consistent
2 with many of the articles cited earlier in my testimony. The current long-term risk
3 free rate was 4.84% as of the close of business on May 11, 2007. If the long term
4 risk free rate (rounded to 4.85%) is combined with the Fama - French risk premium
5 of 3.0% to 3.5%, it results in an expected return of 7.85% to 8.35%.

6 In his book Stocks for the Long Run, Jeremy J. Siegel discusses the long term
7 stability of real returns for equities. On page 11 he states as follows:

8 It is clear that the growth of purchasing power in equities not only
9 dominates all other assets but is remarkable for its long-term stability.
10 Despite extraordinary changes in the economic, social and political
11 environment over the past two centuries, stocks have yielded between
12 6.6 percent and 7.2 percent per year after inflation in all major
13 subperiods.

14 Dr. Siegel further states on page 12 as follows:

15 Note the extraordinary stability of the real returns on stocks over all
16 major subperiods: 7.0 percent from 1802-1870, 6.6% from 1871-1925
17 and 7.2% from 1926-1997.

18 As discussed above, forecasted inflation is expected to range from 1.8% to 2.5%.

19 When the forecasted inflation rates are combined with the range of real returns of
20 6.6% to 7.2% it produces a range of expected equity returns of 8.5% to 9.9%
21 $(1.025[2.5\% \text{ inflation}] * 1.072 [7.2\% \text{ real return}] = 1.0988$, which translates into a 9.9
22 (rounded) return).

23 Moreover, several of the articles I cited earlier in my testimony (when I discuss
24 forecasted market risk premiums) forecast a market return for large company stocks
25 below 9.0%. For example:

1	John Bogle	8.0%
2	Banc of America	8.5% (multiple methods)
3	Portfolio Solutions	7.5%
4	Federal Reserve Bank of Philadelphia	7.5%
5	Goldman Sachs on Social Security	6.5% plus inflation
6	Stock Returns for a New Century	5.0% - 5.5% plus inflation
7	Aswath Damodran (SURFA presentation)	8.86%

8 Additional articles support a total market return below 10.0%. For example, in the
 9 article written by Justin Fox in CNNMoney.com (December 26, 2005) 9% Forever?,
 10 the author notes that Roger Ibbotson's long run forecast for stock returns is 9.27%.
 11 The article also notes that Rob Arnott, Pasadena money manager and editor of the
 12 Financial Analysts Journal disagrees with Dr. Ibbotson and thinks future equity
 13 returns could be below 6%. (Attachment 5)

14 The return figures discussed above are for the overall market. My proxy groups are
 15 less risky than the overall market and should have a lower expected rate of return
 16 than the overall market. The OUCC's proposed cost of equity of 8.75% is consistent
 17 (if not high) with the forecasts made by the sources described above.

18 **Q: Are you aware of any utility specific articles that support the reasonableness of**
 19 **your proposed cost of equity?**

20 **A:** Yes. An article titled A Blast from the Past: The Lull in Rate Cases is Coming to an
 21 End, published by Lehman Brothers, June 4, 2003, states on page 1 as follows:

22 Historically, allowed returns have been 393 basis points above the 10-
 23 year Treasury yield (+/- 153 basis points), which implies decisions in
 24 the 9%+ range could be ahead. Allowed returns currently enjoyed by
 25 utility companies are several basis points above this level.

1 The article also states on page 11 as follows:

2 As mentioned, we believe the current low interest rate environment is
3 likely to lead to more rate cases and lower allowed returns.
4 Historically, the spread of allowed ROE's to the 10-year Treasury
5 bond has been 393 basis points, with a standard deviation of 153
6 basis points. **Based on current 10-year Treasury levels of 3.00%**
7 **to 4.00%, we should begin seeing some rate cases with allowed**
8 **ROE's in the 9% range.**

9 Since 1980, the average allowed ROE was 13.8% (1,101 decisions)
10 and since 1990 it was 11.8% (355 decisions). In the first quarter of
11 2003, the only decision out of six that was below a 10.0% ROE was
12 the 9.96% received by Energy East subsidy Rochester Gas & Electric.
13 It is worth noting, however, that this decision applies to only a one-
14 year period and its ROE could be reset higher in the following year.
15 We have also begun to see Staff recommendations in rate cases in the
16 mid-9% range. For instance, New Jersey Board of Public Utilities'
17 staff recommended a 9.75% ROE for Public Service Electric & GAS
18 and Jersey Central Power & Light. Since 1980, the spread to
19 treasuries was lower when rates were the highest. **We think it is**
20 **only a matter of time before we see rate case decisions with**
21 **allowed ROEs in the 9.0 to 10.0% range.**

22 **Emphases added**

23 While the Lehman Brothers' article is almost four years old, the study was performed
24 over many years, dating back to 1980. The Lehman Brothers' article recognizes the
25 significant decline in interest rates and anticipates that regulatory commissions will
26 be authorizing cost of equities that are in the 9.0% to 10.0% range. As quoted above
27 the article states historically allowed returns on equity have been 393 basis points
28 above the yield on 10-year US Treasury. As of May 11, 2007 the yield on 10 year US
29 Treasury Bonds was 4.67%. When the current yield on 10-year US Treasury bonds is
30 combined with a spread of 393 basis points, it results in an estimated cost of equity of
31 8.6%. The OUCC's recommended cost of equity of 8.75% is 15 basis points above

1 the cost of equity that would be produced by adding a 393 basis point premium to the
2 current yield on 10 year US Treasury bonds.

3 **CRITIQUE OF MR. MOULS ANALYSIS**

4 **Q: What is the purpose of this section of your testimony?**

5 A: In this section of my testimony I will discuss my opinions of the cost of equity
6 methodologies employed by Petitioner's witness, Mr. Moul.

7 **Q: Please summarize Mr. Moul's cost of equity models.**

8 A: Mr. Moul uses one proxy group and presents a DCF, Risk Premium, CAPM and
9 Comparable Earnings analysis to estimate Petitioner's cost of equity. The results of
10 his model can be seen on page 5 of his testimony and range from 10.87% (DCF) to
11 14.55% (Comparable Earnings). Mr. Moul concludes that a range of 11.25% to
12 11.75% is reasonable. Mr. Moul recommends a cost of equity is 11.50%.

13 **MR. MOUL'S DCF MODEL**

14 **Q: Please summarize your disagreements with Mr. Moul's applications of his DCF**
15 **models.**

16 A: Mr. Moul's DCF analysis produces a result of 10.87%. First, Mr. Moul uses a
17 growth rate (g) (7.0%) for his DCF analysis that relies too heavily on intermediate
18 term forecasts in EPS and is unrealistically high. Next Mr. Moul improperly adjusts
19 the results of his DCF by 95 basis points for financial leverage. This is not a proper
20 adjustment to the DCF model. Mr. Moul also adds 21 basis points to results of his
21 DCF analysis for flotation costs. Since this adjustment affects several models I will
22 discuss this separately. Finally, despite producing a result that is more than 150 basis

1 points greater than Petitioner's current authorized cost of equity Mr. Moul attempts to
2 distance himself from the results of his DCF model because he believes it produces a
3 result that is unrealistically low.

4 **Q: How does Mr. Moul derive his 7.0% growth rate for his DCF analysis?**

5 A: Mr. Moul provides historical growth rates of EPS, DPS, BVPS and CFPS on
6 Schedule 6 page 1 of 1 and forecasted growth rates of EPS, DPS, BVPS, and CFPS
7 as well as Value Line B*R on Schedule 7 page 1 of 1. Although Mr. Moul does not
8 use an explicit calculation to derive his 7.0% growth rate it is clear from both a
9 review of the growth rates provided (PRM 2 Schedules 6 & 7) and his testimony that
10 Mr. Moul places the vast majority of his emphasis on forecasted growth rates in EPS.

11 **Q: Do you agree with Mr. Moul's reliance on forecasted growth rates for a DCF**
12 **analysis?**

13 A: No. One needs to be very careful when one develops a DCF analysis based
14 exclusively or primarily on forecasted EPS. Forecasted EPS data are not long term
15 (perpetual) estimates of EPS. The "long term" estimates of EPS provided by
16 companies that make such estimates are typically for only three to five years. Three
17 to five year estimates (by themselves) do not necessarily represent a reasonable long
18 term estimate. Moreover, analyst forecasts of EPS tend to be optimistic and overstate
19 long term growth and should not be used in isolation.

20 **Q: Do you agree with Mr. Moul's testimony on page 29 that a five-year investment**
21 **horizon associated with analysts' forecasts is consistent with the DCF model?**

1 A: No. If one uses a single stage model as Mr. Moul has, the mechanics of the DCF
2 model REQUIRES a growth rate that can be used in perpetuity. While one can
3 certainly use five year forecasts to estimate the long term growth rate (g), the five
4 year forecast in EPS by itself is not a reliable factor to estimate cost of equity even if
5 one has a short term investment horizon or places a primary emphasis on near term
6 forecasts.

7 **Q: Please explain why the mechanics of the DCF model require a long term growth**
8 **rate.**

9 A: Even if (when) investors do not intend to hold an investment beyond five years, the
10 model requires a long term estimate and that requirement cannot be assumed away.
11 Mr. Moul's analysis effectively asserts that the intermediate term (five year) forecast
12 is applicable in perpetuity. However, the equation used in the DCF model assumes
13 an infinite time frame. A belief (even when true) that investors have a short term
14 perspective on their investments does not change the mathematics of the DCF model.

15 **Q: Why can't one simply use a five year growth rate and assume that the stock will**
16 **be sold after five years?**

17 A: One can make that assumption. However, one then needs to estimate the price of the
18 stock at the end of the fifth year. Implicit in any estimate of the price of the stock at
19 the end of the fifth year is growth in EPS and DPS beyond the fifth year, and
20 whatever sales price is used at the end of the fifth year will be based on an assumed
21 or estimated growth rate in EPS and DPS that takes place subsequent to the fifth year.
22 So, using a five year time frame in a DCF analysis does not avoid the need to use a

1 growth rate in dividends that will recognize investor expectations beyond the fifth
2 year. Thus, regardless of the investor's investment horizon the DCF model requires a
3 long term or perpetual growth rate.

4 **Q: Can you cite to any texts that support your opinion that five year growth**
5 **estimates in EPS may not be appropriate to use as a long term estimate of**
6 **growth in a DCF analysis.**

7 A: Yes. On page 106 of his book The Equity Risk Premium – The Long Run future of
8 the Stock Market, Bradford Cornell states as follows:

9 The practical problem raised by relying on analysts forecasts is that
10 such forecasts typically have short horizons. Services that aggregate
11 such forecasts, including those by IBES and Zack's Investment
12 Research, do not provide forecasts beyond 5 years. From the
13 standpoint of the DCF model, which extends into perpetuity, this
14 horizon is too short.

15 Emphasis added

16 Mr. Cornell goes on to discuss the problems with assuming that the forecasted
17 growth rate can be maintained in perpetuity.

18 In most cases, the IBES forecasts are greater than the long-run
19 economic growth rates. Such growth rates clearly cannot be
20 maintained forever. Although it is possible that a company's
21 dividends can grow significantly faster than the general economy for
22 5 years, if such a growth rate were maintained indefinitely, the
23 company would eventually engulf the entire economy.

24 **Q: Mr. Moul cites to an article by Myron Gordon to support his reliance on five**
25 **year forecasts in EPS. Are you persuaded by Dr. Gordon's analysis?**

26 A: No. The Gordon article concludes that of the growth rates it looked at, five year
27 forecasts of EPS was the "single" best estimator of growth. While that may be the
28 case, we are not forced to rely on one estimator of growth. The Commission has

1 consistently expressed its desire to look at many estimators of growth. I agree. We
2 should use the best available data to derive our best estimate of long term growth in
3 our DCF analysis. Moreover, the analysis that the Gordon article is based on is over
4 20 years old. Economic conditions change and forecasted EPS may no longer be the
5 most reliable "single" forecast of investor growth expectations.

6 **Q: So what data should one use to estimate growth (g)?**

7 A: One should review and give weight to both historical and forecasted data and one
8 should also review and give weight to growth rates in EPS, DPS and BVPS.

9 **Q: Has the Commission supported the use of dividend per share data and book**
10 **value per share data in addition to earnings per share data in estimating the**
11 **growth (g) component of the DCF calculation?**

12 A: Yes. In its Final Order in Peoples Gas & Power Company, Cause No. 39315, Order
13 dated October 12, 1992, p.11 the Commission stated as follows:

14 We are also concerned with Petitioner's method of calculating the
15 DCF growth component. Petitioner relies exclusively on dividend
16 growth, while ignoring earnings per share and book value per share
17 data. We have discussed the problems with this approach in Northern
18 Indiana Fuel and Light, Cause Number 39145, January 29, 1992, p.25
19 which is set forth here in pertinent part:

20 The Petitioner claims that book value and earnings
21 data used by Public may distort or bias a growth rate
22 estimate because of accounting differences between
23 firms. Although we agree historical and projected
24 dividend information are important considerations
25 when estimating future rates of growth for the DCF
26 model, we do not believe that book value and earnings
27 data should be ignored. It is clear that dividend
28 growth cannot exceed earnings or book value growth
29 in the long run. To derive growth estimates in the
30 past, this Commission has sanctioned the use of per

1 share data for dividends, earnings, and book value.
2 We continue to view the use of these data as a
3 legitimate method of estimating future growth when
4 judiciously employed. See generally In re Indiana Gas
5 Co., Inc., (Ind. URC September 18, 1987) Cause
6 No. 38080, 86 P.U.R. 4th 241 at 285-286. In re Indiana
7 Michigan Power Co., (Ind. URC August 24, 1990)
8 Cause No. 38728 116 P.U.R. 4th at 1 19-20. We
9 Conclude that Public's use of all available per share
10 data was appropriate for estimating Petitioner's
11 growth rate.

12 On the other hand, Mr. Kaufman paid attention to the above
13 expressed concerns and judiciously employed earnings per share,
14 book value per share, as well as dividends per share in his analysis.

15 In Gary-Hobart Water Corporation (acquired by Indiana American Water
16 Corporation), Cause No. 39585, Order dated December 1, 1993, this Commission
17 again expressed its opinion on page 17 of its Final Order:

18 This Commission has stated in many cases that although we agree
19 historical and projected dividend information are important
20 considerations when estimating future rates of growth for the DCF
21 model, we do not believe that book value and earnings data should be
22 ignored.

23 More recently in Cause No. 42029 Indiana American Water Company, Order dated
24 November 6, 2002 the IURC stated on page 32 as follows:

25 In the past this Commission has consistently sanctioned the use of
26 both historical and forecasted per share data. We continue to believe
27 that both historical and forecasted earnings, dividends and book value
28 per share data are useful when employing the DCF model.

29 **Q: Are arguments that analyst forecasts are optimistic outdated?**

30 A: No. I do not believe that is the case. While it predates the, October 31, 2003, final
31 judgment in the Global Research Analyst Settlement (GRAS), the following article:

1 Stock Analysts Still Put Their Clients First", Financial Analysts Journal, Volume 59
2 Issue 3, May 1, 2003, discusses the separation of research and investment banking
3 services and its influence on analyst estimates. The article concludes that the
4 separation of research and investment banking services has not resolved the concern
5 that analyst forecasts are still upwardly biased. Page 5 of the article states as follows:

6 The new requirements *imply* that independent research (brokerage
7 research without investment banking ties) is better for investors. But
8 why independent analysts will be less vulnerable than brokerage firm
9 analysts to the same pressures for optimism is unclear. Analysts
10 themselves have remarked that one source of strong pressure for
11 "optimism biases" in recommendations is the need to keep access to
12 the managers of the companies they cover; in other words, issue
13 positive research or expect to be cut off from management guidance.
14 Unfortunately, the Sarbanes-Oxley bill, which mandated many
15 improvements in corporate managers' financial practices, did nothing
16 to reduce the unethical practice by many managers of communicating
17 only with those analysts who "cooperate" with management's implicit
18 (and usually positive) forecasts of the future.⁶ Finding a way to fix
19 this blind spot may be more important than all the other "sticks"
20 regulating analysts combined.

21 Interestingly, the *Wall Street Journal* reported in April 2003 that after
22 reviewing disclosure reports issued as a result of the new
23 requirements, they concluded that the brokerage firms of the top
24 investment banks are still more likely to give optimistic research
25 recommendations to their own banking clients. Of course, the new
26 disclosure requirements attempt to protect investor clients by making
27 them aware of investment research's potential as an advertising
28 medium, but the attempt works only if investors read and understand
29 the disclosures. Institutional investors are probably more likely than
30 retail investors to read, put into context, and fully appreciate these
31 new disclosures.

32 Emphases added

33 While the GRAS may have reduced some of the causes of analyst bias, I do not
34 believe the problem of optimistic analyst forecasts has been eliminated.

1 **Q: Summarize your comments on Mr. Moul's estimates of growth (g).**

2 A: The goal in estimating growth (g) in the DCF model is to derive a reasonable long
3 term estimate of growth in dividends. Mr. Moul's analysis relies heavily on
4 intermediate term forecasts in EPS to estimate the growth rate in dividends for his
5 DCF model. Even if one assumes that there is no upward bias in analyst estimates,
6 the estimates used by Mr. Moul are still intermediate term (not long term) forecasts
7 and therefore may not be sustainable over the long term. More specifically, Mr.
8 Moul's estimates of growth are well above historical norms and do not appear to be
9 sustainable given the high payout ratios being employed by most water utilities. Mr.
10 Moul's optimistic growth rates (g) overstate the results of his DCF analysis.

11 **Q: Please discuss your concerns with Mr. Moul's leverage adjustment.**

12 A: Mr. Moul inflates the result of his DCF analysis by 95 basis points to account for the
13 greater leverage of companies in his water proxy at book versus market value. The
14 equations he uses can be seen in his Appendix D page 11 of 11. Mr. Moul argues on
15 page 35 of his testimony that "If regulators rely upon the results of the DCF (which
16 are based on the market price of the stock of the companies analyzed) and apply those
17 results to the book value, the resulting earnings will not produce the level of required
18 return specified by the model when the market prices vary from book value." I do
19 not believe that differences between market and book value create a need to adjust
20 the results of a DCF analysis and therefore, Mr. Moul's leverage adjustment is
21 unnecessary.

1 First Mr. Moul's testimony does not provide any numerical analysis to support his
2 argument that when a utility's market to book ratio is different from 1.0 that his
3 proposed leverage adjustment is necessary (That utilities will under earn absent his
4 adjustment when M:B ratios exceed 1.0). Most rate jurisdictions do not use Mr.
5 Moul's adjustment. The only jurisdiction that Mr. Moul cited who used his
6 adjustment is Pennsylvania. Yet despite the fact that very few rate jurisdictions use
7 Mr. Moul's adjustment, as discussed earlier in my testimony, over the last ten years
8 many water utility returns have exceeded the returns on the S&P 500.

9 Mr. Moul's proposed leverage adjustment produces results that seem perverse. The
10 amount of his adjustment will increase as M:B ratios increase. When water utility
11 M:B ratios are high the amount of his adjustment increases and subsequently his
12 proposed cost of equity increases. Thus, Mr. Moul's adjustment has the effect of
13 rewarding utilities when M:B ratios are high. But utilities do not need to be rewarded
14 for having a high M:B ratio through a higher authorized cost of equity.

15 In most rate jurisdictions rate of returns are set on book value. Investors know that
16 and take that information into account when they determine the price that they are
17 willing to pay for a utility's stock. They do not need additional compensation
18 because investors have bid the price of the stock above its book value. Moreover,
19 rating agencies, such as Standard & Poor's, assess financial risk based on the book
20 value capital structure. Financial publications, such as Value Line, use book values
21 (not the market value) when they calculate long term debt and common equity ratios.

1 Finally, on page 39 of his testimony, Mr. Moul refers to the work of Modigliani and
2 Miller to support his adjustment. However, in Cause No. 43112 SIGECO Electric
3 Company, in OUCC data request question No. 166 Mr. Moul was asked to "indicate
4 exactly (by page and line numbers) where in these publications these same authors
5 prescribe this market value – book value adjustment for rate of return and rate
6 making purposes." The first line of Mr. Moul's response was "There is no reference
7 to the DCF cost rate in those articles." Thus, while Mr. Moul may have incorporated
8 principles from the Modigliani and Miller articles, the leverage adjustment to his
9 DCF analysis is not from the Modigliani and Miller articles.

10 **Q: On pages 6 and 30-32 of his testimony Mr. Moul attempts to distance himself**
11 **from his DCF analysis. Do you agree with Mr. Moul's opinion?**

12 A: No. When appropriate inputs are used, the DCF model is a reliable model and
13 provides reasonable results. In my opinion the Commission should continue to rely
14 on the DCF model in its determination of Petitioner's cost of equity and should not
15 give the DCF model diminished weight as suggested by Mr. Moul.

16 **Q: Does the CAPM give a better indication of required returns than the DCF**
17 **model?**

18 A: No. When a reasonable estimation of the expected growth rate of dividends (g) is
19 used, I believe that the DCF model provides a very accurate estimate of a utility's
20 cost of equity. The key is to use a reasonable estimate of expected growth rate of
21 dividends. A blind reliance on historical or forecasted growth rates of earnings per
22 share, book value per share, or dividends per share may provide results that do not
23 reflect current capital costs. Any company that has recently cut its dividends will

1 have a historical growth rate of dividends that does not reflect future expectations.
2 However, that is a problem in the application of the DCF model, not an indictment of
3 the DCF model as a whole. It is a problem that I believe is easily solved when the
4 DCF model is combined with reasonable judgment.

5 As I mentioned earlier in my testimony, I believe that the CAPM is typically more
6 controversial and less reliable than the DCF model. Eugene Brigham and Louis
7 Gapenski comment on the use of CAPM on page 64 of their text Intermediate
8 Financial Management:

9 Although the CAPM appears to provide neat precise answers to
10 important questions about risk and required rates of return, the
11 answers are really quite fuzzy. **The simple truth is that we do not**
12 **know precisely how to measure any of the inputs required to**
13 **implement the CAPM.** These inputs should all be ex ante, yet we
14 have available only ex-post data. Further as we shall see in chapter 4,
15 historical data such as k_M and k_{RF} and beta vary greatly depending on
16 the time period studied and the methods used to estimate them.
17 **Thus, although the CAPM may appear precise, its inputs cannot**
18 **be estimated with any precision at all,** and hence the estimate of k_i
19 found through the use of CAPM are subject to large errors.

20 **Emphasis added**

MR. MOUL'S CAPM ANALYSIS

21 **Q: Please summarize your disagreements with Mr. Moul's CAPM analysis.**

22 **A:** Mr. Moul's CAPM analysis estimates a cost of equity of 12.86%. Mr. Moul's
23 CAPM analysis makes an improper leverage adjustment (also explained in his DCF
24 analysis), uses a forecasted interest rate that is approximately 40 basis points above

1 the current long term interest rate (4.84% on May 11, 2007), overstates the risk
2 premium and includes unnecessary adjustments for size and for flotation costs.

3 **Q: Please discuss how Mr. Moul estimates his market risk premium of 6.86%**
4 **(Moul - Appendix H, Page H4, line 38)?**

5 A: Mr. Moul's market risk premium is calculated by averaging a forecasted market risk
6 premium of 7.21% with a historical market risk premium of 6.5%. Mr. Moul uses
7 two techniques to derive his forecasted market risk premium. The first is based on
8 Value Lines Median Appreciation Potential and the second is a DCF approach based
9 on forecasted growth in EPS of the S&P 500. Mr. Moul's historical risk premium
10 uses an arithmetic mean calculation based on data provided by Ibbotson's SBBI
11 annual yearbook. I disagree with all three methods Mr. Moul uses to estimate a
12 market risk premium.

13 **Q: Why do you disagree with Mr. Moul's historical risk premium of 6.5%?**

14 A: Mr. Moul's historical risk premium is based entirely on an arithmetic mean
15 calculation and ignores the geometric mean calculation. As stated earlier in my
16 testimony if one is going to use an historical risk premium it should be based on both
17 a geometric and arithmetic mean calculation. When a shareholder owns an
18 investment over multiple periods, they earn a geometric mean return. They do not
19 earn an arithmetic mean return. Thus, to rely exclusively on an arithmetic mean
20 return overstates expected returns. The IURC has consistently relied on both the
21 arithmetic and geometric mean return to estimate an historical market risk premium.
22 Earlier in my testimony I discussed several sources that support the use of a

1 geometric mean calculation to estimate the market risk premium in a CAPM analysis.
2 My testimony specifically quoted from the 1982 version of Ibbotson's Stocks, Bonds,
3 Bills and Inflation, where Dr. Ibbotson supported the use of both the arithmetic and
4 geometric mean risk premium depending on the time frame for the forecast.

5 **Q: How has this Commission ruled on the issue of arithmetic mean premiums**
6 **versus geometric mean risk premiums?**

7 A: As discussed earlier in my testimony the IURC has consistently given weight to both
8 the arithmetic and geometric mean calculations.

9 **Q: Discuss your concerns with Mr. Moul's prospective market risk premiums.**

10 A: Mr. Moul uses two market forecasts to derive a forecasted market risk premium of
11 7.21%. Mr. Moul relies on Value Line's Median Appreciation Potential to estimate a
12 market return of 12.47% and First Call's forecasted growth in EPS to estimate a
13 market return of 12.44%. Mr. Moul then averages the two market returns and
14 subtracts a risk free rate of 5.25% to derive a forecasted market risk premium of
15 7.21%. Both estimates are flawed and overstate the forecasted market return.

16 **Q: Please discuss your concerns regarding Mr. Moul's forecast derived from Value**
17 **Line's Median Appreciation Potential.**

18 Mr. Moul's analysis relies on a 3-5 year Median Price Appreciation Potential of 50%
19 and a 1.8% Estimated Median Dividend Yield (Appendix H, page H3 of H4, footnote
20 1). Both figures are overstated. Mr. Moul calculates a 10.67% annual return and
21 adds the 1.8% market dividend yield to derive a total market return of 12.47%.

1 Value Line's 3-5 year Median Price Appreciation Potential overstates anticipated
2 market returns. As described earlier, several experts expect future market returns to
3 be lower than past returns. The continuing forecast for low inflation further
4 reinforces this expectation. Conversely, Mr. Moul's analysis assumes that future
5 returns will exceed those earned in the past.

6 Moreover, the volatility of Value Line's 3-5 year Median Price Appreciation
7 Potential renders it unreliable for forecasting either current or long term market
8 expectations. For example, in a four week period between February 23 and March 16
9 the Median Price Appreciation increased each week by 5.0% from 30% - 35% - 40%
10 - 45%. (Attachment 10). On an annualized (4 year) basis, that would represent
11 increases from 6.68% - 7.79% - 8.78% - 9.73%. That equates to an increase in
12 expected returns of more than 3.0% annually. Absent some historic event, investors'
13 long term expected returns for the market do not increase by 300 basis points per year
14 in three weeks. Because Value Line's forecast is an intermediate term forecast, it is
15 not intended to be a long term forecast.

16 Third, Mr. Moul's use of Value Line's 1.8% Estimated Median Dividend Yield
17 estimate is inappropriate because it includes only yields from dividend paying stocks.

18 Mr. Moul's testimony does not explain why it is appropriate to use a dividend yield
19 for the market that excludes non-dividend paying stocks. By excluding non-dividend
20 paying stocks (all with zero yields), the Value Line Median Estimated Dividend
21 Yield is higher than it would be if all of the stocks in the Value Line Universe were

1 included. When one estimates a return for “the market” (The Value Line Universe)
2 and starts with the Median Price Appreciation Potential that is taken from the market
3 the Median Estimated Dividend Yield should also come from the same market.

4 **Q: Please discuss your concerns with Mr. Moul’s forecasted market return based**
5 **on First Call’s estimated growth in EPS?**

6 A: Mr. Moul’s analysis uses a DCF approach on the S&P 500 and relies on an estimated
7 growth rate of 10.55%. There are several flaws with Mr. Moul’s forecasted growth
8 rate. First, the growth rate used by Mr. Moul is a 5 year estimate of growth. As I
9 discussed earlier in my testimony the DCF model requires a growth rate that is a long
10 term growth and this requirement cannot be assumed away. A growth rate of 10.55%
11 is unreasonably high and is not sustainable in the long run. Moreover, Mr. Moul
12 relied on a single growth from a single source to estimate growth in the S&P 500.
13 His analysis ignores historical growth and it ignores growth in DPS and BVPS. In
14 his DCF analysis Mr. Moul looks at many estimators of growth. We may disagree on
15 how much weight should be given to each estimator of growth. But at least we both
16 use multiple estimators of growth in our DCF analysis. Yet, to estimate a total
17 market return, Mr. Moul relies on a single estimator of growth. Moreover, as I
18 discussed earlier in my testimony analyst forecasts tend to be optimistic.

19 **Q: How does Mr. Moul’s forecasted growth rate compare to historical averages for**
20 **the S&P 500.**

21 A: The historical growth rates in EPS and DPS are less than the forecasted growth rate
22 used by Mr. Moul in his analysis (Schedule 4). The average annual increase in EPS

1 for the S&P 500 is 7.55% and the average annual in DPS is 5.80%. Thus, I believe a
2 forecasted growth rate in EPS of 10.55% is not sustainable, is unreasonably high and
3 produces an unreliable estimate of the forecasted market return.

4 **Q: Please discuss Mr. Moul's size adjustment.**

5 A: Mr. Moul inflates the results of his CAPM analysis by 102 basis points to account for
6 the smaller size of the companies that make up his proxy group. Mr. Moul refers to
7 Ibbotson's SBBI Yearbook and asserts that a CAPM analysis understates required
8 returns for smaller companies.

9 **Q: Do you agree with Mr. Moul's size adjustment?**

10 A: No. Mr. Moul's use of Dr. Ibbotson's small company adjustment substantially
11 overstates risk for regulated water utilities. Ibbotson's equity size premium
12 adjustment is based on the theory that smaller companies have earned returns above
13 what would otherwise be predicted by a CAPM analysis. I do not believe it is
14 appropriate to directly apply that Ibbotson's equity size premium adjustment to
15 regulated water utilities, such as Mr. Moul's proxy group. Regulation decreases the
16 risks faced by Petitioner and the companies in Mr. Moul's water proxy group. For
17 example, the companies in Mr. Moul's proxy group do not face the same bankruptcy
18 risks that other small companies may face. The Commission supported the view that
19 Ibbotson's small cap adjustment cannot be blindly applied to utilities in South Haven
20 Sewer, Cause No. 40398, order dated May 28, 1997, pages 30 - 31:

21 We are familiar with the Ibbotson derived 400 basis point small
22 company premium used by Mr. Beatty. The rationale behind this

1 approach is that, all other things being equal the smaller the company,
2 the greater the risk. However, to blindly apply this risk premium to
3 Petitioner is to ignore the fact that Petitioner is a regulated utility.
4 The risks from small size for a regulated utility are not as great as
5 those small companies facing competition in the open market.

6 **Q: Are you aware of any articles that support your opinion that a small company**
7 **risk premium should not be applied to the water utility industry?**

8 A: Yes. In an article titled: Do Smaller Companies Warrant a Higher Discount Rate for
9 Risk?, by Business Valuation Alert (Volume 1, Issue No. 2, December 1999, on page
10 3 the article states as follows:

11 The careful business appraiser should come away from the Jung case
12 with the lesson that courts want to see a specific analysis of the risks
13 of a company, not just a showing that the company is smaller and
14 therefore demands a size premium as a result. Although, as a general
15 proposition, smaller companies are riskier than larger companies, it is
16 safer to agree with the Jung court that a specific analysis of the
17 particular risk of a company must be examined in each valuation
18 situation. A size premium does not automatically apply in every case.
19 Each privately held company should be analyzed to determine if a
20 size premium is appropriate in its particular case. There can be
21 unusual circumstances where a small company has risk characteristics
22 that make it far less risky than the average company, warranting the
23 use of a very low equity risk premium. One possible example of this
24 is a private water utility (monopoly situation, very low risk, near-
25 guarantee of payments). The use of a size premium without
26 consideration of the risk of the specific company may subject the
27 appraisal to challenge and rejection on down the road.

28 Emphasis added

29 I agree with both the Commission and article above. Water utilities are not exposed
30 to the same risks as unregulated companies and will not experience the same increase
31 in risk due to their smaller size.

32 **Q: Do you agree with the leverage adjustment that Mr. Moul made to his CAPM**
33 **analysis?**

1 A: No. In his CAPM analysis Mr. Moul's leverage adjustment increases his proxy
2 group's beta from .73 to .93 (pages 49, 50 and 53). Using Mr. Moul's risk premium
3 of 6.86%, his leverage adjustment increases the results of his CAPM analysis by 137
4 basis points ($0.2 * 6.86 = 1.372$). All of the arguments that I made in my critique of
5 Mr. Moul's DCF analysis regarding his leverage adjustment apply here. Moreover,
6 Mr. Moul has not cited a single jurisdiction that has accepted his leverage adjustment
7 for his CAPM analysis.

8 **Q: Do you agree with Mr. Moul's proposal to include an adjustment for flotation**
9 **costs in his CAPM analysis?**

10 A: No. However, this will be discussed later in my testimony.

11 **MR. MOUL'S RISK PREMIUM MODEL**

12 **Q: Please discuss Mr. Moul's Risk Premium model.**

13 A: Mr. Moul's risk premium model produces an estimated cost of equity of 11.46%.
14 His risk premium model uses an interest rate on "A" rated utility bonds of 6.25% a
15 risk premium of 5.00% and an adjustment for flotation costs of 0.21%. Mr. Moul's
16 analysis overstates the risk premium, uses a forecasted interest rate that exceeds the
17 current interest rate and includes an unnecessary adjustment for flotation costs.

18 **Q: Please discuss how Mr. Moul overstates his risk premium.**

19 A: To derive his estimate of the risk premium Mr. Moul gives 50% of the weight to an
20 arithmetic mean calculation, 25% to the geometric mean calculation and 25% to the
21 median. If one is going to rely on historical data to estimate a risk premium one

1 should give equal weight to both the arithmetic and geometric mean return and one
2 should not give any weight to the median.

3 **Q: Why shouldn't one give weight to a risk premium derived from medians?**

4 A: Remember when looking at a sample of numbers the median is simply the middle
5 number.⁵ While the median is a measure of central tendency, I do not believe the
6 median historical market return figures used by Mr. Moul are appropriate measures
7 of investor expectations. In Mr. Moul's analysis median returns exaggerate
8 investors' expectations. For both the S & P Composite Index and the S & P Public
9 Utility Index the median exceeds both the arithmetic and geometric mean return.
10 However, for both Long Term Corporate Bonds and for Public Utility Bonds the
11 median is less than either the arithmetic or geometric mean return. Thus, using
12 median returns inflates the return for the S&P Utility Index and deflates the return for
13 Public Utility Bonds.

14 It is easier to explain some of my concerns regarding the use of medians when the
15 sample has an odd number of data points. In response to OUCC data request
16 question 12-233, Mr. Moul provided an electronic copy of his Schedule 10 with 2006
17 figures (Included as OUCC Schedule 5). The updated schedule has return figures
18 from 1928-2006 (79 data points). I have highlighted the median figure and year (in
19 yellow) in each column. The median return for the S&P Public Utility Index is
20 11.74%. This took place in 1981. The median return for Public Utility Bonds is

5. If the sample has an even number of data points the median is the average of the two middle numbers.

1 4.45%. This took place in 1940. I do not believe that the spread between the return
2 on the S&P Public Utility Stock Index in 1981 vs. the return on the Public Utility
3 Bonds in 1940 is a reasonable basis to derive investor expectations. Investors do not
4 earn median returns and in my opinion it is not how investors think.

5 Medians can be very volatile. On page 2 of my schedule 5 I have compared the
6 arithmetic mean, the geometric mean and the median for 2005 data and 2006 data
7 (Schedule 5 page 2 of 2). During 2006 the annual return for the S&P Composite
8 Index was 15.80%. However, that 15.8% return for the S&P Composite Index
9 increased the geometric mean by 7 basis points, the arithmetic mean by 4 basis points
10 and the median by 93 basis points. Also during 2006 Long Term Corporate Bonds
11 returned 3.24%. However, that 3.24% return for Long Term Corporate Bonds
12 decreased the geometric mean by 4 basis points, the arithmetic mean by 4 basis
13 points and the median by 30 basis points. If one were calculating a risk premium the
14 change from 2005 to 2006 would be 11 basis points for the geometric mean
15 premium, 8 basis points for the arithmetic mean premium and 123 basis points for a
16 premium based on median returns. For all four indexes the change in the median is
17 greater than the change in both the arithmetic and geometric mean.

18 Moreover, next year's change in the median could be equally as volatile. For the
19 S&P Composite Index the two annual returns closest (one above and one below,
20 highlighted in blue) to the median of 14.31% (1971) are 12.45% (1965) and 15.80%
21 (2006). Thus next year's median return for the S&P Composite index will be either

1 13.38%, (the average of 12.45% and 14.31%) if the return is less than 12.45%,
2 15.06% (the average of 14.31% and 15.80% (if the return is greater than 15.80%) or
3 the average of 14.31% and next year's return (if the return is between 12.46% and
4 15.79%). Median returns are more volatile than both arithmetic mean and geometric
5 mean returns. Moreover, investors do not earn median returns and I do not believe
6 that investors think in terms of median returns.

7 **Q: In both Mr. Moul's CAPM and Risk Premium analysis, he uses forecasted**
8 **interest rates. Do you agree with Mr. Moul's use of forecasted interest rates?**

9 A: No. Mr. Moul relies on data from Blue Chip Financial Forecasts (BCFF) to obtain
10 current and forecasted interest rates. BCFF provides forecasts of interest rates over
11 the next 6 quarters. For example, a copy of page 2 from the October 1, 2006 BCFF is
12 included as page 1 of Attachment 11 to my testimony and provides forecasted interest
13 rates through the first quarter of 2008. Mr. Moul's use of forecasted interest rates
14 increases the results of his Risk Premium and CAPM analysis by approximately 20-
15 40 basis points.

16 I do not believe that a forecast of what long term interest rates might be over the next
17 6 quarters is more appropriate to use than current yields. BCFF's forecasted interest
18 rates were 20 – 50 basis points higher than the current rates at that time. For
19 example, according to the October 1, 2006 BCFF, the current yield on 10 year US
20 Treasury bonds on September 22, 2006 was 4.71%, but was forecasted to increase to
21 4.9% in both the first and second quarter of 2007. An updated copy of the same
22 publication (Page 2 of Attachment 11 to my testimony) shows a current yield on

1 March 23, 2007 for 10 year US Treasury bonds is 4.58%. That represents a decline
2 in rates of 13 basis points and not an increase of 19 basis points as forecasted by
3 BCFF. Moreover, the updated copy still forecasts an increase in yields for 10 year
4 US Treasury bonds to 4.9% by the third quarter of 2008.

5 **Q: But don't you need to use forecasted interest rates to make the models forward**
6 **looking?**

7 A: No. When one purchases long term debt, the purchaser is making a forecast. The
8 purchaser anticipates factors such as inflation over the life of the debt and uses those
9 factors to determine the appropriate purchase price and subsequent yield of his or her
10 investment. The purchase price produces a yield that the investor is willing to accept
11 over the life of the debt. Thus, a current yield is already a forward looking yield over
12 the investment horizon.

13 When one forecasts that interest rates are going to increase the forecaster is, in effect,
14 predicting that the price of the bond will decrease. If one strongly believed that the
15 price of the bond is going to decrease in the near term, the purchaser would decrease
16 his current purchase price and the spread between the forecasted yield and current
17 yield would decrease. I think that there is a tendency amongst some analysts to take a
18 "conservative" approach and assume that when interest rates are low the same
19 interest rates are more likely to increase in the future. However, the best indication
20 of what investors think interest rates will do is how they vote with current dollars.
21 The current purchase price represents a statement with dollars as to what the investor
22 believes will happen over his or her investment horizon.

1 **Q: But, isn't it inconsistent to combine current interest rates with forecasted**
2 **market risk premiums?**

3 A: No. As I described in my previous answer today's current purchase price is a forecast
4 and is the best forecast depicting investor expectations. Moreover, I am not
5 convinced that a forecast of what long term bonds will yield in 6 to 18 months is
6 more appropriate than a current yield. It does not provide a better match.

7 **Q: Would accepting your recommendations to reject medians, forecasted yields**
8 **and flotation costs make Mr. Moul's Risk Premium model produce a reasonable**
9 **cost of equity estimate?**

10 A: No. These recommendations solve only parts of the problem. As discussed earlier in
11 my testimony many sources believe that the forecasted risk premium will be less than
12 indicated by historical returns. This concept applies for both the CAPM and Risk
13 Premium models.

14 These sources forecast a risk premium for US large company stocks and risk-free
15 bonds that ranges from 1.5% to 5.25%. According to Value Line, the current spread
16 between current yields on risk free 30 Year US treasury bonds and "A" Utility bonds
17 is approximately 120 basis points (4.82% - 6.01%) [Value Line Selections and
18 Opinions, May 11, 2007]. Substituting riskier utility bonds for risk-free US treasury
19 bonds (into the range of forecasted risk premiums [1.5% - 5.25%]) reduces the
20 forecasted risk premium for U.S. large company stocks to "A" rated Utility bonds to
21 a range of 0.3% to 4.05%. Thus, if a forecasted risk premium was given any weight
22 in a Risk Premium model, it would result in both a smaller risk premium and a lower
23 estimated cost of equity.

1 Also, the average actual earned return for the S&P Public Utility index from 1928-
2 2006 is only 8.8%. My proposed return on equity is comparable to the average actual
3 earned return for the S&P Public Utility index from 1928- 2006.

4 **Q: Please discuss some of your theoretical concerns regarding the Risk Premium**
5 **model.**

6 A: The risk premium model assumes a stable risk premium that will remain stable over
7 time. As mentioned earlier in my testimony there is growing evidence that the
8 expected risk premium is lower than the historical risk premium. Despite the
9 financial literature that supports the opinion that forecasted market risk premiums are
10 lower than one estimated from historical evidence, Mr. Moul's analysis derives a
11 forecasted market risk premium that is similar or higher than suggested by the
12 historical evidence.

13 **Q: In addition to the articles cited earlier in your testimony is there other evidence**
14 **that supports the opinion that the historical risk premium is not an appropriate**
15 **measure to use as a forecast?**

16 A: Yes. In an article titled What Risk Premium is "Normal" by Robert Arnott and Peter
17 L. Bernstein (Copyright 2002) the authors assert that the historical 5% risk premium
18 for stocks relative to government has never been a realistic expectation. The article
19 states on page 1 as follows:

20 We are in an industry that thrives on the expedient of forecasting the
21 future by extrapolating the past. As a consequence, investors have
22 grown accustomed to the idea that stocks "normally" produce an
23 8.0% real return and a 5% risk premium over bonds, compounded
24 annually over many decades.¹

25 ...Both figures are unrealistic from current market levels. Few have
26 acknowledged that an important part of the lofty real returns of the

1 past has steamed from rising valuation levels and from high dividend
2 yields which have since diminished. As this article will demonstrate,
3 the long-term forward-looking risk premium is nowhere near the 5%
4 of the past; indeed, it may well be near-zero today perhaps even
5 negative.³ Similarly, the long-term forward-looking real return from
6 stocks is nowhere near the history's 8%. Our argument will show
7 that, bearing unprecedented economic growth or unprecedented
8 growth in earnings as a percentage of the economy, real stock returns
9 will probably be roughly 2-4%, similar to bonds. Indeed, even this
10 low real return figure assumes that current near-record valuation
11 levels are "fair" and likely to remain this high in the years ahead.
12 "Reversion to the mean" would push future returns lower still.

13 On the following page the article further states:

14 A 5% excess return on stocks over bonds, earned over very long
15 spans, compounds so mightily that most serious fiduciaries would not
16 even consider including bonds in a portfolio with a horizon of more
17 than a few years: the probabilities of stocks outperforming bonds
18 would be too high to resist – if they believed stocks were going to
19 earn a 5% "risk premium"⁵

20 (Citations from article included at the end of my testimony)

21 On page 8, the article discusses a series of "historical accidents" that the authors
22 believe are not likely to repeat themselves that has caused the premium that stocks
23 have earned over bonds during the last 75 years to exceed what investors expected
24 the premium to be. For example, after World War II expected inflation became the
25 norm as part of bond valuations. "This created a one-time shock to bonds that
26 decoupled nominal yields from real yields and drove nominal yields higher, even as
27 real yields fell." Next, the authors assert that: "Stocks have gone from a valuation
28 level of 18 times dividends to over 70 times dividends. This four-fold increase in the
29 value assigned to each dollar of dividends contributes 1.5% to the annual returns over
30 the last 75 years, even though the entire increase occurred in the last eighteen years of

1 the period (we last saw 5.1% yields in 1984). This explains fully one-third of the
2 seventy-five year excess return.” Finally, the authors assert as follows:

3 The U.S. has fought no wars on its own soil, nor have we experienced
4 revolution. Four of the fifteen largest stock markets in the world in
5 1990 suffered total loss of capital -100% return, at some point in the
6 past century; China, Russia, Argentina and Egypt. Two others came
7 close: Germany (twice) and Japan. U.S. investors in early 1926
8 would not have counted on this likelihood as “zero.” Nor should
9 today’s true long-term investor.

10 **Q: Has Dr. Ibbotson commented on the risk premium?**

11 A: Yes. In an article titled The Supply of Stock Market Returns by Roger Ibbotson and
12 Peng Chen (June 2001), the authors contest assertions that the market risk premium
13 is negative or close to zero. However, the article asserts that historical data does in
14 fact overstate the expected risk premium. On page 15 the article states as follows:

15 The equity risk premium is estimated to be about 4% in geometric
16 terms and 6% on an arithmetic basis. This estimate is about 1.25%
17 lower than the straight historical estimate.

18 Thus, while criticizing the contention that the market risk premium compared to risk
19 free bonds is close to zero or negative, the article supports the notion that historical
20 data overstates a forecasted market risk premium.

21 **Q: Did Alan Greenspan comment on the market risk premium?**

22 A: Yes. In a speech made on October 14, 1999 Chairman Greenspan stated as follows:

23 That equity premiums have generally declined during the past decade
24 is not in dispute. What is at issue is how much of the decline reflects
25 new, irreversible technologies, and what part is a consequence of a
26 prolonged business expansion without a significant period of
27 adjustment. The business expansion is, of course, reversible, whereas
28 the technological advancements presumably are not.

1 To the extent that a decline in the market risk premium reflects new, irreversible
2 technologies Mr. Greenspan's comments still hold true today.

3 **Q: Would the concerns you discussed above apply to Mr. Moul's estimated risk**
4 **premium.**

5 A: Yes. Mr. Moul's estimated risk premium produces a risk premium of 5.0% over "A"
6 rated utility bonds. The analysis I presented earlier in my testimony derived a
7 forecasted risk premium of 4.25% over risk free US treasury bonds. Since "A" rated
8 utility bonds are riskier than US Treasury bonds the spread (risk premium) between
9 the S&P utility Index and A rated utility bonds should be less than the spread
10 between US Treasury bonds and the return on large company stocks. Regardless of
11 the source of data, the contentions put forth above support the opinion that the risk
12 premium in the future will be less than what has been earned in the past. I believe
13 that opinion holds true regardless of how one estimates a risk premium. Thus, I
14 believe Mr. Moul's estimated risk premium overstates future expectations.

15 **Q: Would the concerns you discussed above about the use of a historical risk**
16 **premium to estimate a forecasted risk premium also apply to a CAPM analysis?**

17 A: Yes. The Capital Asset Pricing Model is a form of the Risk Premium model. Thus,
18 any criticisms about the use of historical data to forecast a future risk premium also
19 apply to a CAPM analysis.

20 **Q: Please summarize your concerns regarding the Risk Premium model.**

21 A: Like his CAPM analysis, Mr. Moul's Risk Premium model relies too heavily on an
22 arithmetic mean return to estimate a risk premium. Mr. Moul's risk premium

1 analysis also relies on overstated median estimates. And, there seems to be
2 significant controversy surrounding the use of historical data to forecast a market risk
3 premium. As discussed above some analysts believe that a forecasted market risk
4 premium is close to zero. While Dr. Ibbotson contests those assertions, he also
5 agrees that the historical data overstates the future risk premium. If one accepts the
6 premise that risk premium will be lower in the future than it has been in the past, then
7 Mr. Moul's risk premium models overstate the cost of equity.

8 **MR. MOUL'S COMPARABLE EARNINGS METHODOLOGY**

9 **Q: Please discuss your concerns with Mr. Moul's Comparable Earnings (CE)**
10 **analyses?**

11 A: Mr. Moul's CE analysis produces an estimated cost of equity of 14.55%. This
12 estimate is 169 basis points higher than his next highest model. Mr. Moul's CE
13 analysis is based on the average of historical and projected returns of 24 companies
14 which he asserts are similar in risk to his proxy group. Since Mr. Moul agreed during
15 his cross examination (cite and quote transcript) that he gave very little weight to the
16 results of his CE analysis I will limit my criticisms of his analysis.

17 **Q: Please discuss your specific concerns regarding Mr. Moul's CE analysis.**

18 A: Mr. Moul's analysis did not exclude outliers. His CE analysis includes companies
19 such as Yum! Brands whose historical earned return was 63.0% and its projected
20 return is 38.5%. It is unreasonable to include a company with such returns in a CE
21 analysis. While Mr. Moul's use of median returns mitigates the influence of

1 companies such as Yum! Brands on his final result, it does not lessen the need to
2 choose comparable companies.

3 Next, Mr. Moul did not screen his CE proxy group for dividends or percentage of
4 long term debt. Water utilities tend to have low business risk which allows them to
5 incur a larger degree of financial risk. Thus, water utilities tend to carry a large
6 proportion of long term debt in their capital structure. Regardless of any other
7 screening criteria used by Mr. Moul a company that has no or little long term debt is
8 not comparable to either of his water company proxy groups. The same theory
9 applies to dividends. Water utilities pay a relatively large percentage of their
10 earnings as dividends to their shareholders. Large dividend payments reflect the
11 lower risk of the water industry. Several of the companies in Mr. Moul's CE proxy
12 group do not have long term debt and/or pay little or no dividends. Again, regardless
13 of any other screening criteria employed by Mr. Moul, a comparable earnings
14 analysis that includes companies that pay no or little dividends will not be
15 comparable to the water company proxy groups used by Mr. Moul in his analysis.

16 **Q: Please discuss some of the theoretical concerns that apply to all comparable**
17 **earnings analyses.**

18 A change in market conditions such as interest rates will influence investor
19 expectations, and the results of both a CAPM and/or DCF analysis will, in turn,
20 quickly react to reflect the change in investor expectations. Historical earned returns
21 do not react to changes in market conditions. In past cases I have seen the
22 comparable earnings methodology produce increasing returns during periods of

1 declining capital costs. Finally, Mr. Moul's analysis assumes that operating returns
2 (accounting returns) can be used to estimate market returns. I am not convinced it is
3 appropriate to rely on accounting returns to estimate cost of equity.

4 **Q: Has the Commission commented on models that show increasing rates of return**
5 **during periods of stable or declining capital costs?**

6 A: Yes, they have. In Cause No. 42029, Order dated November 6, 2002, Indiana
7 American Water Company the IURC stated on page 37 as follows:

8 Beyond some mechanical deficiencies in the results of Dr. Boquist's
9 model, any model that shows increasing rates of returns during
10 periods of stable or declining capital costs raises questions.

11 **Q: Please summarize your concerns regarding Mr. Moul's Comparable Earnings**
12 **Analysis.**

13 A: Mr. Moul's Comparable Earnings analyses include companies that have little or no
14 debt and/or don't pay dividends. These companies are not comparable to either
15 Petitioner or Mr. Moul's water company proxy group. Finally, the Comparable
16 Earnings model does not properly react to changes in investor expectations and can
17 move in the opposite direction of capital costs. For all of these reasons the
18 Commission should reject Mr. Moul's Comparable Earnings analysis.

19 **FLOTATION COSTS**

20 **Q: Mr. Moul adds 21 basis points to the results of his DCF, CAPM and Risk**
21 **Premium analysis for flotation costs. Do agree that this adjustment is**
22 **necessary?**

23 A: No. I do not believe that Petitioner has justified the need to recover flotation costs in
24 this case. When a utility has recently incurred or expect to incur flotation costs in the

1 near future this Commission has typically allowed utilities to recover measurable
2 flotation costs. On page 30 of their Final Order in PSI, Cause No. 40003 the IURC
3 expressed their opinion on flotation costs and stated as follows:

4 Although this Commission has recognized the need to adjust the cost
5 of equity to reflect the costs associated with equity issuances, it has
6 heretofore authorized such adjustments only when there was a
7 projected near-term need to issue new stock. In this particular
8 proceeding, Dr. Morin has not persuaded us to change this practice

9 ...We also observe that Dr. Morin's proposal appears to recapture
10 historical costs that may have been incurred decades prior to the test
11 year. For these reasons, we reject Dr. Morin's proposal regarding
12 flotation costs, and find that Mr. Kahal proposed a more appropriate
13 adjustment for purposes of the DCF calculation.

14 On page E1 of Appendix E Mr. Moul argues that "Even in the situation where a
15 company will not issue common stock during the near term, the flotation cost
16 adjustment factor should be applied to the common equity. Mr. Moul's opinion that
17 flotation costs should always be included is contrary to, the Commission's position
18 stated in Cause 40003.

19 **Q: But hasn't Petitioner established a near term need with the pending IPO of**
20 **AWW?**

21 **A:** No. In OUCC data request question No. 24 the OUCC asked Petitioner what
22 flotation costs American Water Works incurred during each of the last five years?
23 Petitioner's response was "None." The OUCC also asked if Petitioner anticipated
24 that it would incur flotation costs in the future. Petitioner responded as follows:

25 Does American Water Works anticipate it will incur any flotation
26 costs during the next three years? If yes, please explain the costs
27 American Water Works anticipates it will incur.
28

Information Provided:

Yes. There will be two categories of flotation costs associated with the initial public offering ("IPO") of American Water Works stock that was announced on March 24, 2006. The first category consists of the underwriters' discount/commission that will consist of a specific dollar amount per share for each share sold to the public. These amounts will be retained by the underwriters from the gross proceeds realized from the sale of shares to the public, before net proceeds are realized by the selling shareholder i.e., RWE. The second category consists of out of- pocket expenses that will be incurred by the company itself. Specifically, in addition to the underwriting discounts/ commissions, there are exchange fees, costs of a marketing program, such as travel, printing, etc. that would be necessary elements of a new issuance of stock. American Water Works will incur at least a portion of those costs. Moreover, while no specific plans are in place for additional offerings of common equity within a three year time horizon, it is inevitable that additional public offerings will take place in the years to come. When this takes place, the company will encounter all flotation costs as they have been enumerated in Appendix E to Mr. Moul's testimony.

The issuance costs incurred by American Water Works will not be incurred from a stock issuance that raises additional funds for either Petitioner or its parent company. Instead it is RWE divesting itself of its ownership in AWW. The expenses incurred by RWE to divest itself of AWW are not costs that should be borne by AWW or Indiana American ratepayers. These costs should be borne by RWE. Finally, even if the recovery of flotation costs from the IPO are justified, Petitioner has not provided any company specific analysis on the actual costs it anticipates that it will incur.

Q: What about Indiana American's plans to raise \$35 million in equity as proposed in Cause No. 43256?

A: Indiana American is not raising the \$35 million on the open market and will not incur flotation costs on the \$35 million infusion of equity by AWW. Moreover, AWW is not raising the \$35 million on the open market and will not incur flotation costs.

1 **Q: Do you have any final comments on flotation costs?**

2 A: Yes. To support his proposal to include a flotation cost adjustment for Petitioner,
3 Mr. Moul states as follows on Page E1 of Appendix E:

4 The rate of return on common equity must be high enough to avoid
5 dilution when equity is issued.

6 And:

7 A market price of common stock above book value is necessary to
8 attract future capital on reasonable terms in competition with other
9 seekers of equity capital.

10 As indicated by Mr. Moul when he proposes his leverage adjustment, the market
11 price of companies in the water industry is currently well above book value. A
12 market to book ratio well above 1.00 would seem to diminish the need to always
13 make a flotation cost adjustment.

14 **CONCLUSIONS ON COST OF EQUITY**

15 **Q: Do you have any final comments about Mr. Moul's analysis?**

16 A: Yes, I do. To the extent that I have not commented on areas of Mr. Moul's analysis,
17 it should not be viewed as an acceptance of his analysis or position.

18 **Q: Please review the most significant differences between you and Petitioner in**
19 **your estimation of petitioner's cost of equity.**

20 A: Our cost equity estimates differ by 275 basis points (8.75% vs. 11.50%). Most of our
21 differences can be explained by the following factors:

22 1: Mr. Moul's estimated cost of equity give too much weight to the arithmetic
23 mean in both his CAPM and Risk Premium analysis.

24 2: Mr. Moul's use of a forecasted risk premium that exceeds historical averages
25 in his CAPM analysis.

1 3: Mr. Moul's use of an unnecessary leverage adjustment in his DCF and
2 CAPM analysis.

3 4: Mr. Moul's use of unrealistically high growth rates in his DCF analysis.

4 5: Mr. Moul's small company adjustment in his CAPM analysis

5 **Q: Do you have any final comments on cost of equity?**

6 A: Yes. Over the last three years the United States has seen large increases in short term
7 interest rates. These increases are well known, have received significant attention in
8 the press and have created an impression that capital costs must be higher today than
9 they were three years ago. However, it is important to note that long term interest
10 rates have not seen the same increases that US markets have seen in short term
11 interest rates. As discussed earlier in my testimony long term interests are at similar
12 levels as they were in Petitioner's last rate case. Moreover, Petitioner's cost of long
13 term debt has decreased from 6.86% to 6.78% since its last rate case. That is a
14 decrease of approximately 8 basis points. Moreover, Petitioner's average cost of debt
15 is likely to decrease in the near term as it completes the proposed debt issuances from
16 its recent financing case, Cause No. 43256.

17 Thus, while my recommended cost of equity of 8.75% may be lower than costs of
18 equity this Commission has awarded in past rate cases, I believe that it is reasonable,
19 supported by the evidence and is well founded.

1 **Petitioner's Purchased Power Adjustment (PPA)**

2 **Q: What is the purpose of this section of your testimony?**

3 A: As part of its proposed rate increase Petitioner proposes to track its purchased power
4 and fuel costs. This part of my testimony responds to Petitioner's proposal to include
5 a Purchased Power Adjustment mechanism (PPA) as part of its proposed rate
6 increase in this Cause.

7 **Q: Do you agree with Petitioner's terminology of its Purchased Power Adjustment?**

8

9 A: No. I believe the term Electric Bill Risk Mitigation Mechanism (EBRMM) is a more
10 descriptive term than the one used by Petitioner. First, the purpose of Petitioner's
11 PPA mechanism is to reduce or mitigate its risk from changing (increasing) bills from
12 its electric and natural gas utility providers. For example, on page 23 lines 1-11, Mr.
13 Heid lists four factors that the Commission considers when evaluating whether a
14 tracker is appropriate for Petitioner to recover its purchased fuel and power costs.
15 The fourth bullet point states as follows:

16 Cost over-recovery or under-recovery is possible due to the above
17 factors, creating the possibility of a significant detrimental impact on
18 customers or shareholders.

19 Emphasis added

20 The intent of IA's proposed tracker is to eliminate or considerably reduce the
21 purported "significant detrimental impact" that could occur absent authorization of
22 Petitioner's proposed tracker. A proposal to reduce or eliminate a "significant
23 detrimental impact" is an attempt to reduce or mitigate risk. Thus, it is more

1 descriptive to refer to Petitioner's proposal as an Electric Bill Risk Mitigation
2 Mechanism (EBRMM).

3 Second, Petitioner does not purchase electricity or natural gas for resale to other
4 consumers, such as an electric or natural gas public utility which track costs related to
5 purchased power or purchased natural gas. The main feature of these types of
6 trackers is the principle of substitution, that is, the utility substitutes the purchase of
7 the underlying commodity for the internal production of that commodity which is
8 then sold to end-use customers. Similarly, some water utilities track their purchased
9 water expenses, and that purchase has the same principle of substitution. However,
10 Petitioner's request to track its bills for the electricity it uses in the production of
11 water, and the natural gas it uses to heat its buildings, does not share this fundamental
12 principle of substitution to warrant being called a "purchased power adjustment" as
13 that term is typically used in IURC practices.

14 **Q: Do you agree with the criteria listed by Mr. Heid on page 23 of his testimony**
15 **which outlines the appropriate criteria to determine if an expense should be**
16 **tracked?**

17 **A:** Mostly, yes. However, I do not agree with the first part of the third bullet point
18 which states "Costs are potentially large in relation to net income". The amount of
19 the total cost alone is irrelevant. As I will explain in greater detail later in my
20 testimony, one needs to focus on the potential change in costs and not the total
21 amount of the cost in order to address the potential influence upon net income. I am
22 also not convinced that it is most appropriate to compare the changes in the proposed

1 cost to total net income. Next, I believe Mr. Heid's criteria are not complete. An
2 expense should not be tracked if it is offset by an increase in revenues or a decrease
3 in other expenses, especially if the increase in revenues varies directly with the
4 expense being tracked.

5 **Q: Do you agree that Petitioner's proposed EBRMM meets the necessary criteria to**
6 **be tracked?**

7 A: No. I believe that Petitioner's proposal falls short on several counts. First, the
8 potential change in purchased power and fuel costs are not material enough to cause a
9 "significant detrimental impact." Secondly, all or a portion, of the increase in power
10 expenses may be offset by an increase in sales of water.

11 **Q: Do you have any other initial concerns?**

12 A: Yes. In my opinion it is inappropriate to combine two unrelated expenses simply to
13 make the total expense appear large enough to make the expense appear material, or
14 simply because the utility traditionally reports its expenses that way. Power costs and
15 natural gas costs should not be combined into one category. The electricity to pump
16 water is a very different type of expense than the cost to heat buildings. Power costs
17 are a more direct cost of production and are in large part tied to the level of sales,
18 while Petitioner's costs to heat its structures are not. Each cost should be treated
19 separately when the Commission reviews Petitioner's request to track these costs.

Materiality

1
2 **Q: Has Petitioner shown that the change in power and fuel costs is material?**

3 A: No. First, and this is very important, it is **the change** in costs (not the total costs) that
4 this Commission should review when deciding if it is appropriate to allow a utility to
5 track a particular cost. On pages 19 and 20 of his testimony, Mr. Heid describes the
6 need to track power costs and expresses total power costs to cost of production as a
7 percentage of net income. Specifically, Mr. Heid asserts that “fuel and purchased
8 power costs comprise a material percentage of Indiana-American’s net income,
9 historically ranging from 22 percent to 31 percent.” Mr. Heid’s testimony also
10 asserts that fuel and purchased power costs are the single largest operation and
11 maintenance expense to Petitioner.

12 However, a representative level of electric bills will be built into base rates, whether
13 it is the \$5,345,028 Petitioner has proposed, or some other level determined by the
14 Commission. The gross amount of an expense included in base rates is irrelevant to
15 whether it is appropriate to track that expense. The evidence to support the need for a
16 tracker should be based on the potential change in costs. Even if one accepts Mr.
17 Heid’s analysis that one should compare annual total costs to test year net income
18 (which I do not), one should compare change in costs not total costs.

19 According to Petitioner’s response to OUCC data request 4-85 its power and fuel
20 costs for 2003 and 2006 respectively were \$4,255,025 and \$5,125,089. Thus, after
21 three years Petitioner’s annual power and fuel bills have increased by a total of

1 approximately \$870,000. Thus, the starting point for any numerical analysis this
2 Commission should use to determine if Petitioner needs to track its power and fuel
3 expenses is its change in fuel and power expenses of \$870,000. Next, the increased
4 expense is paid for with pre-tax dollars and the increase would reduce pre-tax income
5 and income taxes. Based on conversations with OUCC witness Judy Gemmecke, an
6 increase in expenses of \$870,000 would reduce Petitioner's income tax liability by
7 approximately \$350,000. Thus, an increase in purchased fuel and power expenses of
8 \$870,000 would reduce net income by approximately \$520,000. But even the
9 \$520,000 increase exaggerates the volatility of Petitioner's increase in power and gas
10 costs, because it took three years for costs to increase to that level, and it ignores any
11 potential increase in sales.

12 Thus, even after three years of increased costs, based on a calendar 2006 year end net
13 income of \$12,166,023 (Petitioner's response to OUCC data request question 17-
14 310), a change in net income of \$520,000 is less than 4.5% of net income. The
15 change is also less than 1.5% of proposed net operating income, and less than 0.5%
16 of proposed revenue requirements. Moreover, this analysis assumes power and fuel
17 expenses should be combined into one expense.

18 **Q: Using Petitioner's numbers are there other O&M expenses larger than**
19 **purchased power and fuel?**

20 **A:** Yes. According to Petitioner's exhibit GNV-1 U its Pro-Forma proposed
21 Management Fees is \$16,173,964 per year, its labor expense is \$13,875,785 and its
22 miscellaneous expense is \$6,373,506 per year. All three expenses are larger than

1 Petitioner's proposed "Purchased Power" expense. Additionally, its group Insurance
2 (\$4,951,669) and Customer Accounting (\$4,250,607) are both close in magnitude to
3 its power and fuel costs.

4 While I understand Mr. Heid's effort to distinguish purchased power as a "single"
5 expense compared to the ones I just mentioned above, he combines natural gas space
6 heating expense with electricity expense. Moreover, Petitioner's electric bills
7 comprise multiple uses: pumps for moving water, lights in Petitioner's buildings,
8 adding machines, computers, printers, copiers, telephones and myriad other office
9 equipment uses. In my opinion, Labor Expense is no less a single expense than the
10 "purchased power" expense Petitioner proposes for tracker treatment. Thus, I
11 disagree with Mr. Heid's argument.

12 **Q: Does Petitioner's testimony discuss how its proposed electric bill risk mitigation**
13 **mechanism influences its cost of equity?**

14 A: No. Despite Petitioner's assertion "Therefore, accurate cost recovery of fuel and
15 purchased power costs is vitally important to Petitioner" (Page 20 line 3),
16 Petitioner's testimony does not indicate explicitly or implicitly recognize that if the
17 Commission grants its proposed EBRMM that the EBRMM will have a measurable
18 influence on Indiana American's risk to lower its cost of capital. If a tracker or
19 EBRMM is not material enough to reduce Petitioner's cost of capital (or even be
20 discussed by Petitioner) it is hard to understand how it as vitally important.
21 Petitioner's failure to recognize the influence its proposed tracker has on cost of

1 equity is itself an indication that its proposed tracker does not meet a materiality
2 threshold.

3 **Offsets**

4 **Q: If Petitioner's purchased power expenses increase will there also be an increase**
5 **in revenues to offset the expense increase?**

6 A: Possibly. If Petitioner pumps and sells additional water, that will cause its power
7 expense to increase. However, Petitioner will also earn additional revenues from its
8 increased sales. If an increase in an expense is offset by an increase in revenues,
9 ratepayers should not have to pay for an increase in that expense, and that expense
10 therefore is not the type of expense which should be tracked without backstop
11 measures to protect ratepayers from inequitable cost recovery mechanisms.

12 **Other Concerns**

13 **Q: What are some of your other concerns?**

14 A: If an expense is tracked a utility has a reduced incentive to minimize that cost. Since
15 the utility can recover an increase in cost there is a reduced incentive to find ways to
16 reduce that cost. Moreover, a utility may actually forgo expense savings actions
17 because it will incur a cost that cannot be recovered. Hypothetically, assume a utility
18 has the opportunity to spend \$10,000 on a piece of equipment that would reduce its
19 electricity costs by \$50,000. The utility has an incentive to incur a \$50,000 cost that
20 is tracked and will be passed on to ratepayers instead of spending \$10,000 that would
21 not be tracked. Moreover, by tracking Petitioner's power and fuel costs it creates a
22 potential disincentive for Petitioner to conserve its use of these resources.

1 Fundamental changes such as this proposed tracker mechanism carry risks of
2 unintended consequences and inappropriate incentives that are difficult to address in
3 a proposed tracker proceeding.

4 **Q: Are there other costs that may or will decrease that Petitioner has not proposed**
5 **to track as part of this cause?**

6 A: Yes. In Cause No. 43256 Petition is seeking Commission Authority and has
7 proposed to issue up to \$120,000,000 in long term debt. Some of the long term debt
8 will be new debt and some of it will be used to refinance old higher cost debt. Most
9 if not all of the debt will be issued after the cut off date to update the capital structure
10 in this Cause. To the extent that Petitioner's new debt will be issued at a rate below
11 its average cost of debt, the new debt will reduce Indiana American's cost of debt and
12 subsequent cost of capital. Yet, Petitioner has not proposed to track its cost of debt
13 and subsequent weighted cost of capital.

14 **Conclusions on Mr. Heid's Testimony**

15 **Q: Please review this section of your testimony?**

16 A: Power costs and fuel costs are distinct and each cost should be reviewed separately
17 by this Commission in its determination of the need to track that cost. Next, it is the
18 change in costs or potential for change (not the total amount of the cost) in a cost that
19 should determine if the cost should be tracked. In this case Petitioner has not shown
20 that the change in its purchased power and fuel costs are material. In fact the
21 potential change in power and fuel costs are quite small when compared to total
22 revenue requirements. Moreover, despite Petitioner's assertion that its request is

1 vital there is no discussion on how this "vital request" mitigates risk and subsequent
2 cost of equity. Next, Petitioner's proposed tracker may provide it an incentive to
3 incur tracked costs in favor of other non-tracked costs irrespective of net impact to
4 customers and it creates a potential disincentive for Petitioner to conserve its use of
5 these resources. Next, to the extent that the change in a cost is offset by an increase
6 in sales, it is inappropriate to track that expense. Finally, Petitioner's analysis ignores
7 other expenses that are likely to decrease.

8 **Critique of Ed Grubb's testimony - Fair Value Tests**

9 **Q: On page 26 of his testimony Mr. Grubb asserts that the Company has provided**
10 **the Commission five reasonableness tests which indicate that the Company's**
11 **proposed NOI could be higher. Mr. Grubb also concludes that his**
12 **reasonableness tests support his proposal to exclude Parent company interest**
13 **deductions. Do you agree with Mr. Grubb's assertions?**

14 **A:** No. I have several concerns with Mr. Grubb's fair value tests which I will discuss in
15 my testimony. Also OUCC witness Ms. Gemmecke will discuss Parent company
16 interest and why it should be included.

17 **Q: Please discuss your general concerns with Mr. Grubb's fair value tests.**

18 **A:** My first concern is with Mr. Grubb's calculation of fair value. Note this calculation
19 influences all five of his fair value tests. Mr. Grubb's calculation of fair value adds
20 net investor supplied plant additions. When Mr. Grubb removes old plant (as an
21 offset to net additions) from his fair value calculation he removes it at book cost. But
22 that same plant was previously included in the fair value figure at fair value. Thus he

1 starts with plant valued at fair value and removes retirements at their book value.

2 Doing so tends to overstate a fair value rate base calculation.

3 **Q: In tests 1, 2 and 3 Mr. Grubb removes inflation from Petitioner's cost of debt to**
4 **estimate a fair rate of return. Do you agree with any of these tests?**

5 A: No. Mr. Grubb's analysis understates the inflation included in the capital structure.

6 When Mr. Grubb estimates the fair value of Petitioner's plant he updates the entire

7 amount of plant by inflation. Yet, when Mr. Grubb estimates a fair rate of return he

8 removes inflation only from the debt portion of the capital structure. Thus, Mr.

9 Grubb's analysis adds more inflation to rate base than is removed from the capital

10 structure. Both the equity and debt portions of the capital structure include

11 compensation for inflation. To the extent that inflation is added to the entire rate

12 base, all elements in the capital structure that include compensation for inflation also

13 need to be reduced by inflation.

14 **Q: What is the implied cost of equity that would be required to derive a NOI**
15 **equivalent to each of Mr. Grubb's fair value tests?**

16 A: Test 1 (NOI of \$50,814,812) 17.30%

17 Test 2 (NOI of \$46,467,822) 15.11%

18 Test 3 (NOI of \$49,690,590) 16.71%

19 Test 4 (NOI of \$45,643,393) 14.69%

20 In its Final Order in Cause No. 40103, Indiana American Water Company, Order

21 dated May 30, 1996 (Included in book 3 of Petitioner's direct testimony) this

22 Commission discussed a tool to examine the reasonableness of fair value returns. On

23 pages 48-49 this Commission stated as follows:

1 The range for fair returns established by the evidence of record is
2 approximately 6.50% to 7.70%. A useful tool for examining the
3 reasonableness of a fair value return is a comparison to the results
4 generated by applying the weighted cost of capital to the original cost
5 rate base, which in this case generates a net operating income NOI of
6 \$15,889,633. Although we have already discussed the
7 inappropriateness of the OUCC's original cost test for establishing
8 the reasonableness of our fair value finding in this case, the test can
9 be performed to exclude results that are clearly outside the range of
10 reasonableness under any methodology. If Petitioner were awarded
11 a fair value return of 7.03% or 7.70%, which represent the high end of
12 the range of values, its NOI would be \$18,388,441 and \$20,140,967,
13 respectively. To generate these same NOIs on an original cost basis
14 would require authorization of returns on equity of 14.41% and
15 16.78%. These returns vastly exceed our original cost finding for the
16 cost of equity of 11.00%, and exceed Petitioner's own original
17 recommendation of 13.00%, which was later reduced to 12.75%.
18 Having eliminated the high end of our range from consideration, the
19 remaining values establish a range of 6.50% to 6.74%, and we find
20 this to be reasonable.

21 Four of Mr. Grubb's fair value tests produce results vastly exceed both mine and Mr.
22 Moul's proposed cost of equity. Based on the Commission's reasonableness test
23 above, these four fair value tests should be disregarded because they produce results
24 that are clearly outside the range of reasonableness under any methodology.

25 **Q: Does this conclude your testimony?**

26 **A: Yes.**

1 Table of Citations:

2	Page 17	Footnote 15: Robert D. Arnott and Peter L. Bernstein "What Risk Premium is
3		Normal? <i>Financial Analysts Journal</i> , 58 (2) March/April 2002): 64-85
4		Footnote 16: Source Council of Economic Advisors, Economic Report of the
5		President, 2002.
6		Footnote 17: See for example, Vijay Kumar Chopra, "Why So Much Error in
7		analysts' Earnings Forecasts?" <i>Financial Analysts Journal</i> , 54(6)
8		November/December 1998): 35-42.
9		Footnote 18: See Masakao N. Darrough and Thomas Russal, "A Positive
10		Model of Earnings Forecasts: Top Down Versus Bottom Up." <i>Journal of</i>
11		<i>Business</i> , 75(1) (January 2002) 127-52.
12	Page 18	Footnote 2 See Marc H. Goedhart, Brendan Russel and Zane Williams,
13		"Prophets and profits?" <i>McKinsey on Finance</i> , Number 2, Autumn 2001
14	Page 24	Footnote 4 of the text cites to Ibbotson Associates, <i>Stocks, Bonds, Bills and</i>
15		<i>Inflation 1993 Yearbook</i> (Chicago, 1993).
16	Page 25	Footnote 5 of the text cites A. Lo and C. MacKinlay, "Stock market Prices
17		Do Not Follow Random Walks: Evidence from a Simple Specification Test,"
18		<i>Review of Financial Studies</i> (Spring 1988): 41-66; E. Fama and K. French,
19		"Dividend Yields and Expected Stock Returns," <i>Journal of Financial</i>
20		<i>Economics</i> (October 1988): 3-25; J. Poterba and L. Summers, "Mean
21		reversions in Stock Prices: Evidence and Implications," <i>Journal of Financial</i>
22		<i>Economics</i> (October 1988): 27-59.
23		Footnote 14 of the text cites Mehra and Prescott (1985). The relatively large
24		size of the historical U.S. equity premium relative to that predicted by theory,
25		given estimates of investors' risk aversion, is known as the "equity premium
26		puzzle" The geometric mean was also the choice of Dimson, Marsh, and
27		Staunton (2000) in their authoritative survey of world equity markets.
28	Page 29	Footnote 2 of the text cites Gebhardt, Lee, and Swaminathan (forthcoming)
29		find similar results when estimating firm-specific discount rates, rather than
30		the market-level discount rates considered in this paper.
31	Page 49	Footnote 6: The Sarbanes-Oxley bill may be found at
32		banking.senate.gov/pss/acctrfm_rpt.pdf .

1 Page 66 Footnote 1: The “bible” for the return assumptions that drive our industry is
2 the work of Ibbotson Associates, building on the pioneering work of Roger
3 Ibbotson and Rex Sinquefeld [1976]. The most recent update of the annual
4 Ibbotson Associates data shows returns for stocks, bonds, bills and inflation
5 of 11.0%, 5.3%, 3.8% and 3.1% respectively. This implies a real return for
6 stocks of 7.95% and a risk premium over bonds of 5.7%, both measured over
7 a very long 75-year span. These data shape the expectations of the actuarial
8 community, much of the consulting community and many fund sponsors.

9 Footnote 3: See Robert D. Arnott and Ronald J. Ryan, “the death of the Risk
10 Premium,” Journal of Portfolio Management, Summer, 2001.

11 Page 67 Footnote 5: For instance, if our ancestors could have earned a mere 1.6% real
12 return on a \$1 investment from the birth of Christ in roughly 4 BC to today,
13 we would today have enough to buy more than the entire world economy.
14 Similarly, the island of Manhattan was ostensibly purchased for \$24 of goods,
15 approximately the same as an ounce of gold when the dollar was first issued.
16 This modest sum invested to earn a mere 5% real return would have grown to
17 over \$20 billion in the 370 years since the transaction. At an 8% real return,
18 as stocks have earned from 1926-2000 in the Ibbotson data, this small
19 investment would now suffice to buy more than the entire world economy.

SCHEDULES

SUMMARY OF COST OF EQUITY STUDIES

DCF Studies

Value Line Proxy Group

DCF Study using 3 month:
Dividend yield: (schedule 2) 8.51%

DCF Study using 6 month:
Dividend yield: (schedule 2) 8.45%

AUS Proxy Group

DCF Study using 3 month:
Dividend yield: (schedule 2) 9.36%

DCF Study using 6 month:
Dividend yield: (schedule 2) 9.33%

Range of DCF Studies: 8.45% - 9.36%

CAPM Studies

Historical Risk Premiums

Combined Proxy Group

CAPM Study using
Long term interest rates: 8.97% - 9.02%
(Schedule 3, page 4)

CAPM Study using
Intermediate term interest rates 9.00% - 9.02%
(Schedule 3, page 4)

SUMMARY OF COST OF EQUITY STUDIES

CAPM Studies (cont)

Forecasted Risk Premiums

Combined Proxy Group

CAPM Study using
Long term interest rates: 7.86% - 7.91%
(Schedule 3, page 4)

CAPM Study using
Intermediate term interest rates 7.71% - 7.73%
(Schedule 3, page 4)

Range of CAPM Studies: 7.71% - 9.02%

Range of all Studies: 7.71% - 9.36%

Range of most heavily
Weighted studies: 8.45% - 9.02%

Recommended Cost of
Equity for Petitioner: **8.75%**

DCF MODEL
VALUE LINE PROXY
SUMMARY OF GROWTH RATES (g)

	10 YEAR EARNINGS PER SHARE	5 YEAR EARNINGS PER SHARE	FORECASTED EARNINGS PER SHARE	10 YEAR DIVIDENDS PER SHARE	5 YEAR DIVIDENDS PER SHARE	FORECASTED DIVIDENDS PER SHARE	10 YEAR BOOK VALUE PER SHARE	5 YEAR BOOK VALUE PER SHARE	FORECASTED BOOK VALUE PER SHARE	AVERAGE
AMERICAN STATES WATER			9.00%	1.00%	1.00%	3.00%	4.00%	4.50%	6.00%	4.07%
AQUA AMERICA	9.00%	8.50%	7.50%	6.00%	6.50%	9.50%	9.50%	11.00%	7.00%	8.28%
CALIFORNIA WATER	1.00%		6.50%	1.50%	1.50%	1.00%	3.00%	3.00%	5.00%	2.81%
SOUTHWEST WATER	13.50%	1.50%	11.00%	6.00%	10.00%	9.50%	9.50%	14.00%	8.50%	9.28%
AVERAGE	7.83%	5.00%	8.50%	3.63%	4.75%	5.75%	6.50%	8.13%	6.63%	6.11%

Value Line April 27, 2007

	ZACKS* FORECASTED EARNINGS PER SHARE	REUTERS** FORECASTED EARNINGS PER SHARE	C.A. TURNER*** FORECASTED DIVIDENDS PER SHARE	AVERAGE
AMERICAN STATES WATER		3.00%	0.50%	1.75%
AQUA AMERICA	9.60%	11.17%	5.00%	8.59%
CALIFORNIA WATER	9.30%	9.25%	1.00%	6.52%
SOUTHWEST WATER	10.00%	10.00%	2.70%	7.57%
AVERAGE	9.63%	8.36%	2.30%	6.11%

*Zack's 5/3/07

**Reuters.com 5/03/07

***CA Turner Dividend Monitor and Outlook, March, 2007

DIVIDEND YIELDS

	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	3 MONTH AVERAGE	6 MONTH AVERAGE
AMERICAN STATES WATER	2.20%	2.40%	2.50%	2.50%	2.40%	2.50%	2.47%	2.42%
AQUA AMERICA	1.90%	1.90%	2.00%	2.10%	2.00%	2.10%	2.07%	2.00%
CALIFORNIA WATER	3.10%	2.80%	2.90%	3.00%	2.80%	3.10%	2.97%	2.95%
SOUTHWEST WATER	1.60%	1.50%	1.80%	1.90%	1.70%	1.80%	1.80%	1.72%
AVERAGE	2.20%	2.15%	2.30%	2.38%	2.23%	2.38%	2.33%	2.27%

COST OF EQUITY = DIVIDEND YIELD * (1+.5 * GROWTH RATE) + GROWTH RATE

USING A THREE MONTH AVERAGE YIELD AND A

6.11% Growth Rate 8.51%

USING A SIX MONTH AVERAGE YIELD AND A

6.11% Growth Rate 8.45%

DCF MODEL
AUS PROXY GROUP

SUMMARY OF GROWTH RATES

Forecasted Growth Rates Extended Proxy	ZACKS* FORECASTED EARNINGS PER SHARE	REUTERS** FORECASTED EARNINGS PER SHARE	C.A. TURNER** FORECASTED DIVIDENDS PER SHARE	AVERAGE
AMERICAN STATES WATER		3.00%	0.50%	1.75%
AQUA AMERICA	9.60%	11.17%	5.00%	8.59%
CALIFORNIA WATER	9.30%	9.25%	1.00%	6.52%
CONNECTICUT WATER	10.00%	10.00%	1.50%	7.17%
MIDDLESEX WATER COMPANY	8.00%	6.00%		7.00%
SIJW CORP	10.00%	10.00%	6.50%	8.83%
SOUTHWEST WATER	10.00%	10.00%	2.70%	7.57%
YORK WATER COMPANY	8.00%	8.00%	1.70%	5.90%
AVERAGE	9.27%	8.43%	2.70%	6.67%

*Zack's 5/3/07

**Reuters.com 5/03/07

***CA Turner Dividend Monitor and Outlook, March, 2007

DIVIDEND YIELDS

	Oct-06	Nov-06	Dec-06	Jan-07	Feb-07	Mar-07	3 MONTH AVERAGE	6 MONTH AVERAGE
AMERICAN STATES WATER	2.20%	2.40%	2.50%	2.50%	2.40%	2.50%	2.47%	2.42%
AQUA AMERICA	1.90%	1.90%	2.00%	2.10%	2.00%	2.10%	2.07%	2.00%
CALIFORNIA WATER	3.10%	2.80%	2.90%	3.00%	2.80%	3.10%	2.97%	2.95%
CONNECTICUT WATER	3.90%	3.90%	3.70%	3.60%	3.50%	3.50%	3.53%	3.68%
MIDDLESEX WATER COMPANY	3.60%	3.40%	3.70%	3.60%	3.70%	3.80%	3.70%	3.63%
SIJW CORP	1.70%	1.60%	1.60%	1.50%	1.70%	1.70%	1.63%	1.63%
SOUTHWEST WATER	1.60%	1.50%	1.80%	1.90%	1.70%	1.80%	1.80%	1.72%
YORK WATER COMPANY	2.30%	2.40%	2.60%	2.60%	2.70%	2.80%	2.70%	2.57%
AVERAGE	2.54%	2.49%	2.60%	2.60%	2.56%	2.66%	2.61%	2.58%

COST OF EQUITY = DIVIDEND YIELD * (1+ .5 * GROWTH RATE) + GROWTH RATE

USING A THREE MONTH AVERAGE YIELD AND A

6.67% Growth Rate 9.36%

USING A SIX MONTH AVERAGE YIELD AND A

6.67% Growth Rate 9.33%

YIELDS ON U.S. TREASURY SECURITIES

	<u>1 Year T-NOTE</u>	<u>5 Year T-NOTE</u>	<u>10 Year T-NOTE</u>	<u>30 Year T-BOND</u>
4-May-06	4.98%	5.03%	5.15%	5.24%
1-Jun-06	5.07%	5.02%	5.10%	5.19%
6-Jul-06	5.29%	5.14%	5.18%	5.22%
3-Aug-06	5.11%	4.90%	4.96%	5.04%
7-Sep-06	5.02%	4.73%	4.79%	4.93%
5-Oct-06	4.87%	4.54%	4.60%	4.76%
1-Nov-06	4.99%	4.52%	4.56%	4.68%
6-Dec-06	4.86%	4.45%	4.49%	4.60%
3-Jan-07	5.01%	4.65%	4.65%	4.76%
7-Feb-07	5.07%	4.73%	4.74%	4.85%
7-Mar-07	4.92%	4.43%	4.49%	4.63%
4-Apr-07	4.93%	4.54%	4.65%	4.84%
3-Month Average	4.97%	4.57%	4.63%	4.77%
6-Month Average	4.96%	4.55%	4.60%	4.73%
Spot yields - May 11, 2007		4.58%	4.67%	4.84%

Interest rates obtained from Value Line Selections and Opinions
Spot yields taken from CNN.com

RISK PREMIUM

Historical Risk Prremiums

Total Returns 1926 - 2006

	Stocks	Long Bonds	Int Bonds	Short Bonds
Geometric Mean	10.40%	5.40%	5.30%	3.70%
Arithmetic Mean	12.30%	5.80%	5.40%	3.80%

Market Risk Premiums

Geometric Mean	5.00%	5.10%	6.70%
Arithmetic Mean	6.50%	6.90%	8.50%
Average Premium	5.75%	6.00%	7.60%

Total return data obtained from Ibbotson Associates:
SBBI 2007 Yearbook Classic Edition.

Water Industry Betas

	Value Line Beta*	Smart Money Beta**	Reuters Beta***	NASDAQ Beta****	Average Value Line 50% Other Sources 50%
AMERICAN STATES WATER	0.80	0.52	0.56	0.57	0.676
AQUA AMERICA	0.90	0.46	0.44	0.47	0.679
CALIFORNIA WATER	0.90	0.79	0.75	0.78	0.836
CONNECTICUT WATER	0.90	0.54	0.56	0.59	0.732
MIDDLESEX WATER COMPANY	0.85	0.61	0.65	0.66	0.746
SJW CORP	0.70	0.85	0.83	0.84	0.770
SOUTHWEST WATER	0.90	0.66	0.71	0.69	0.794
YORK WATER COMPANY	0.55	0.71	0.85	0.82	0.670
Average	0.813	0.643	0.668	0.677	0.738

*April 27,2007

**May 3, 2007

***May 3, 2007

****May 3. 2007

All betas are adjusted: Adjusted beta = Raw beta*.67 +.35

CAPM Calculations
Historical Risk Premiums

Risk premiums		Long	Int	Short
Premiums		5.75%	6.00%	7.60%
Rates	3 month	4.77%	4.60%	4.97%
Beta	0.738	9.02%	9.02%	10.58%

Risk premiums		Long	Int	Short
Premiums		5.75%	6.00%	7.60%
Rates	6 month	4.73%	4.58%	4.96%
Beta	0.738	8.97%	9.00%	10.57%

Forecasted Risk Premiums

Risk premiums		Long	Int	Short
Premiums		4.25%	4.25%	4.25%
Rates	3 month	4.77%	4.60%	4.97%
Beta	0.738	7.91%	7.73%	8.11%

Risk premiums		Long	Int	Short
Premiums		4.25%	4.25%	4.25%
Rates	6 month	4.73%	4.58%	4.96%
beta	0.738	7.86%	7.71%	8.10%

Distribution of Value Line Betas

Beta	# Of Companies With The Beta Value to the Left	Cumulative Total	% Of Companies At Or Above The Beta Value	% Of Companies Below the Beta Value	# Of Companies As a % of Total Companies	Weighted Average Of Betas
2.95	1	1	0.063%	99.937%	0.063%	0.0018
2.90	1	2	0.125%	99.875%	0.063%	0.0018
2.85		2	0.125%	99.875%	0.000%	0.0000
2.80		2	0.125%	99.875%	0.000%	0.0000
2.75	1	3	0.188%	99.812%	0.063%	0.0017
2.70		3	0.188%	99.812%	0.000%	0.0000
2.65	1	4	0.250%	99.750%	0.063%	0.0017
2.60		4	0.250%	99.750%	0.000%	0.0000
2.55		4	0.250%	99.750%	0.000%	0.0000
2.50		4	0.250%	99.750%	0.000%	0.0000
2.45	1	5	0.313%	99.687%	0.063%	0.0015
2.40	2	7	0.438%	99.562%	0.125%	0.0030
2.35		7	0.438%	99.562%	0.000%	0.0000
2.30	2	9	0.564%	99.436%	0.125%	0.0029
2.25	1	10	0.626%	99.374%	0.063%	0.0014
2.20		10	0.626%	99.374%	0.000%	0.0000
2.15		10	0.626%	99.374%	0.000%	0.0000
2.10	4	14	0.877%	99.123%	0.250%	0.0053
2.05	4	18	1.127%	98.873%	0.250%	0.0051
2.00	4	22	1.378%	98.622%	0.250%	0.0050
1.95	4	26	1.628%	98.372%	0.250%	0.0049
1.90	6	32	2.004%	97.996%	0.376%	0.0071
1.85	9	41	2.567%	97.433%	0.564%	0.0104
1.80	7	48	3.006%	96.994%	0.438%	0.0079
1.75	15	63	3.945%	96.055%	0.939%	0.0164
1.70	13	76	4.759%	95.241%	0.814%	0.0138
1.65	22	98	6.137%	93.863%	1.378%	0.0227
1.60	22	120	7.514%	92.486%	1.378%	0.0220
1.55	21	141	8.829%	91.171%	1.315%	0.0204
1.50	24	165	10.332%	89.668%	1.503%	0.0225
1.45	31	196	12.273%	87.727%	1.941%	0.0281
1.40	43	239	14.966%	85.034%	2.693%	0.0377
1.35	48	287	17.971%	82.029%	3.006%	0.0406
1.30	55	342	21.415%	78.585%	3.444%	0.0448
1.25	63	405	25.360%	74.640%	3.945%	0.0493
1.20	84	489	30.620%	69.380%	5.260%	0.0631
1.15	98	587	36.756%	63.244%	6.137%	0.0706
1.10	103	690	43.206%	56.794%	6.450%	0.0709
1.05	124	814	50.971%	49.029%	7.765%	0.0815
1.00	133	947	59.299%	40.701%	8.328%	0.0833
0.95	157	1104	69.130%	30.870%	9.831%	0.0934
0.90	144	1248	78.147%	21.853%	9.017%	0.0812
0.85	104	1352	84.659%	15.341%	6.512%	0.0554
0.80	79	1431	89.606%	10.394%	4.947%	0.0396
0.75	66	1497	93.738%	6.262%	4.133%	0.0310
0.70	39	1536	96.180%	3.820%	2.442%	0.0171
0.65	30	1566	98.059%	1.941%	1.879%	0.0122
0.60	14	1580	98.936%	1.064%	0.877%	0.0053
0.55	8	1588	99.436%	0.564%	0.501%	0.0028
0.50	4	1592	99.687%	0.313%	0.250%	0.0013
0.45	2	1594	99.812%	0.188%	0.125%	0.0006
0.40	1	1595	99.875%	0.125%	0.063%	0.0003
0.35	1	1596	99.937%	0.063%	0.063%	0.0002
0.30	1	1597	100.000%	0.000%	0.063%	0.0002
Total	1597					1.0898

Historical Data for the S&P 500 and
Implied Premiums for US Market

Year	Earnings Yield	Dividend Yield	S&P 500	Earnings	Dividends	Change in Earnings	Change in Dividends	T. Bill Rate	T. Bond Rate	Bond-Bill	Smoothed Growth	Implied Premium (DDM)	Analog Growth Estimate	Implied Premium (PCE)
1960	5.34%	3.41%	58.11	3.1	1.98	8.60%	2.91%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1961	4.71%	2.85%	71.55	3.37	2.04	8.79%	5.21%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1962	4.81%	3.40%	63.1	3.67	2.15	8.79%	5.21%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1963	5.51%	3.13%	75.02	4.13	2.35	12.75%	9.45%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1964	5.62%	3.05%	84.75	4.76	2.58	15.23%	10.08%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1965	5.73%	3.06%	92.43	5.3	2.83	11.20%	9.42%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1966	6.74%	3.59%	80.33	5.41	2.88	2.23%	1.96%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1967	5.66%	3.09%	96.47	5.46	2.98	0.85%	3.37%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1968	5.51%	2.93%	103.86	5.72	3.04	4.81%	2.09%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1969	6.63%	3.52%	92.06	6.1	3.24	6.66%	6.49%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1970	5.98%	3.46%	92.15	5.51	3.19	-9.72%	-1.61%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1971	5.46%	3.10%	102.09	5.57	3.16	1.15%	-0.74%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1972	5.23%	2.70%	118.05	6.17	3.19	10.76%	0.71%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1973	8.16%	3.70%	97.55	7.96	3.61	28.93%	13.24%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1974	13.64%	5.43%	68.56	9.35	3.72	17.48%	3.14%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1975	8.45%	4.14%	90.19	7.71	3.73	-17.54%	0.30%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1976	9.07%	3.93%	107.46	9.75	4.22	26.39%	13.10%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1977	11.43%	5.11%	95.1	10.87	4.86	11.53%	15.07%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1978	12.11%	5.39%	96.11	11.64	5.18	7.07%	6.60%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1979	13.48%	5.53%	107.94	14.55	5.97	25.01%	15.23%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1980	11.04%	4.74%	135.76	14.99	6.44	3.01%	7.87%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1981	12.39%	5.57%	122.55	15.18	6.83	1.31%	6.08%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1982	9.83%	4.93%	140.64	13.82	6.93	-8.95%	1.58%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1983	8.06%	4.32%	164.93	13.29	7.12	-3.84%	2.76%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1984	10.07%	4.88%	167.24	16.84	7.83	26.69%	9.85%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1985	7.42%	3.88%	211.28	15.68	8.2	-6.91%	4.74%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1986	5.96%	3.38%	242.17	14.43	8.19	-7.93%	-0.15%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1987	6.49%	3.71%	247.08	16.04	9.17	11.10%	11.99%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1988	8.20%	3.68%	277.72	22.77	10.22	42.02%	11.49%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1989	6.80%	3.32%	353.4	24.03	11.73	5.52%	14.80%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1990	6.88%	3.74%	330.22	21.73	12.35	-9.58%	5.09%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1991	4.88%	3.11%	417.09	19.1	12.97	-12.08%	5.03%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1992	4.16%	2.90%	435.71	18.13	12.64	-5.12%	-2.59%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1993	4.25%	2.72%	466.45	19.82	12.69	9.37%	0.41%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1994	5.89%	2.91%	459.27	27.05	13.36	36.45%	5.34%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1995	5.74%	2.90%	615.93	35.35	14.17	30.70%	6.00%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1996	4.83%	2.01%	740.74	35.78	14.89	1.20%	5.08%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1997	4.83%	1.60%	970.43	39.56	15.52	10.57%	4.25%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1998	3.11%	1.32%	1229.23	38.23	16.2	-3.35%	4.37%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
1999	3.07%	1.14%	1469.25	45.17	16.71	18.13%	3.15%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2000	3.94%	1.23%	1320.28	52	16.27	15.13%	-2.65%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2001	3.85%	1.37%	1148.09	44.23	15.74	-3.74%	-3.24%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2002	5.37%	1.83%	879.82	47.24	16.08	6.81%	2.15%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2003	4.87%	1.61%	1111.91	54.15	17.88	14.63%	11.19%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2004	5.33%	1.60%	1211.92	67.01	19.47	23.75%	8.54%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2005	5.47%	1.79%	1248.29	68.32	22.38	1.95%	15.32%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
2006	5.78%	1.77%	1418.3	81.96	25.05	19.66%	11.93%	3.03%	2.76%	0.10%	2.45%	2.92%		2.92%
Average	6.76%	3.23%	7.36%	7.55%	5.80%	8.21%	5.79%	5.63%	6.79%	1.16%	6.47%	3.46%	8.63%	3.85%

Data taken from the web site of Dr. Aswath Damodaran:

<http://pages.stern.nyu.edu/~adamodar/>

S&P Composite Index and S&P Public Utility Index
Long-Term Corporate and Public Utility Bonds
Yearly Total Returns
1928-2006

Moul Excel RP Model.xls

Year	S & P Composite Index	S & P Public Utility Index	Long Term Corporate Bonds	Public Utility Bonds
1928	43.61%	57.47%	2.84%	3.08%
1929	-8.42%	11.02%	3.27%	2.34%
1930	-24.90%	-21.96%	7.98%	4.74%
1931	-43.34%	-35.90%	-1.85%	-11.11%
1932	-8.19%	-0.54%	10.82%	7.25%
1933	53.99%	-21.87%	10.38%	-3.82%
1934	-1.44%	-20.41%	13.84%	22.61%
1935	47.67%	76.63%	9.61%	16.03%
1936	33.92%	20.69%	6.74%	8.30%
1937	-35.03%	-37.04%	2.75%	-4.05%
1938	31.12%	22.45%	6.13%	8.11%
1939	-0.41%	11.26%	3.97%	6.76%
1940	-9.78%	-17.15%	3.39%	4.45%
1941	-11.59%	-31.57%	2.73%	2.15%
1942	20.34%	15.39%	2.60%	3.81%
1943	25.90%	46.07%	2.83%	7.04%
1944	19.75%	18.03%	4.33%	3.29%
1945	36.44%	53.33%	4.33%	5.92%
1946	-8.07%	1.26%	1.72%	2.98%
1947	5.71%	-13.16%	-2.34%	-2.19%
1948	5.50%	4.01%	4.14%	2.65%
1949	18.79%	31.39%	3.31%	7.16%
1950	31.71%	3.25%	2.12%	2.01%
1951	24.02%	18.63%	-2.69%	-2.77%
1952	18.37%	19.25%	3.52%	2.99%
1953	-0.99%	7.85%	3.41%	2.08%
1954	52.62%	24.72%	5.39%	7.57%
1955	31.56%	11.26%	0.48%	0.12%
1956	6.56%	5.06%	-6.81%	-6.25%
1957	-10.78%	6.36%	8.71%	3.58%
1958	43.36%	40.70%	-2.22%	0.18%
1959	11.96%	7.49%	-0.97%	-2.29%
1960	0.47%	20.26%	9.07%	9.01%
1961	26.89%	29.33%	4.82%	4.65%
1962	-8.73%	-2.44%	7.95%	6.55%
1963	22.80%	12.35%	2.19%	3.44%
1964	16.48%	15.91%	4.77%	4.94%
1965	12.45%	4.67%	-0.46%	0.50%
1966	-10.06%	-4.48%	0.20%	-3.45%
1967	23.98%	-0.63%	-4.95%	-3.63%
1968	11.06%	10.32%	2.57%	1.87%
1969	-8.50%	-15.42%	-8.09%	-6.66%
1970	4.01%	16.56%	18.37%	15.90%
1971	14.31%	2.41%	11.01%	11.59%
1972	18.98%	8.15%	7.26%	7.19%
1973	-14.66%	-18.07%	1.14%	2.42%
1974	-26.47%	-21.55%	-3.06%	-5.28%
1975	37.20%	44.49%	14.64%	15.50%
1976	23.84%	31.81%	18.65%	19.04%
1977	-7.18%	8.64%	1.71%	5.22%
1978	6.56%	-3.71%	-0.07%	-0.98%
1979	18.44%	13.58%	-4.18%	-2.75%
1980	32.42%	15.08%	-2.76%	-0.23%
1981	-4.91%	11.74%	-1.24%	4.22%
1982	21.41%	26.52%	42.56%	33.52%
1983	22.51%	20.01%	6.26%	10.33%
1984	6.27%	26.04%	16.86%	14.82%
1985	32.16%	33.05%	30.09%	26.48%
1986	18.47%	28.53%	19.85%	18.16%
1987	5.23%	-2.92%	-0.27%	3.02%
1988	16.81%	18.27%	10.70%	10.19%
1989	31.49%	47.80%	16.23%	15.61%
1990	-3.17%	-2.57%	6.78%	8.13%
1991	30.55%	14.61%	19.89%	19.25%
1992	7.67%	8.10%	9.39%	8.65%
1993	9.99%	14.41%	13.19%	10.59%
1994	1.31%	-7.94%	-5.76%	-4.72%
1995	37.43%	42.15%	27.20%	22.81%
1996	23.07%	3.14%	1.40%	3.04%
1997	33.36%	24.69%	12.95%	11.39%
1998	28.58%	14.82%	10.76%	9.44%
1999	21.04%	-8.85%	-7.45%	-1.69%
2000	-9.11%	59.70%	12.87%	9.45%
2001	-11.88%	-30.41%	10.65%	5.85%
2002	-22.10%	-30.04%	16.33%	1.63%
2003	28.70%	26.11%	5.27%	10.01%
2004	10.87%	24.22%	8.72%	6.03%
2005	4.91%	16.79%	5.87%	3.02%
2006 (p)	4.53%	20.95%	3.24%	3.94%
Geometric Mean	10.10%	8.80%	5.85%	5.45%
Arithmetic Mean	12.03%	11.14%	6.17%	5.73%
Standard Deviation	20.13%	22.55%	8.57%	7.89%
Median	14.31%	11.74%	4.14%	4.45%

Yellow highlights are median with year

Comparison of 2005 & 2006 Averages

	<u>S & P Composite Index</u>	<u>S & P Public Utility Index</u>	<u>Long Term Corporate Bonds</u>	<u>Public Utility Bonds</u>
1928-2006				
Geometric Mean	10.10%	8.80%	5.85%	5.45%
Arithmetic Mean	12.03%	11.14%	6.17%	5.73%
Standard Deviation	20.13%	22.55%	8.57%	7.89%
Median	14.31%	11.74%	4.14%	4.45%
1928-2005				
Geometric Mean	10.03%	8.65%	5.89%	5.47%
Arithmetic Mean	11.99%	11.02%	6.21%	5.75%
Standard Deviation	20.26%	22.67%	8.61%	7.93%
Median	13.38%	11.50%	4.44%	4.55%
Change from 2005 to 2006				
Geometric Mean	0.07%	0.15%	-0.04%	-0.02%
Arithmetic Mean	0.04%	0.12%	-0.04%	-0.02%
Median	0.93%	0.24%	-0.30%	-0.10%

ATTACHMENTS

SEARCH

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Survey of Professional Forecasters

Release Date: February 13, 2007

A complete writeup of this survey, including all tables, is available here in .pdf format.

First Quarter 2007

Forecasters Provide Views on New Measures of Inflation and Long-Term Expectations for Inflation Decline

Two measures of core inflation in the U.S. economy will decelerate in 2007 and hold nearly steady over the following two years, according to 49 forecasters surveyed by the Federal Reserve Bank of Philadelphia. Measured on a fourth-quarter over fourth-quarter basis, core CPI inflation will fall to 2.3 percent this year and hold steady at that rate in 2008 and 2009. An alternative measure of core inflation, the rate of change in the price index for personal consumption expenditures (PCE), is also expected to decelerate, to 2.0 percent, in 2007 before rising to 2.1 percent in 2009. Core inflation measures the rate of change in a price index that excludes the prices of food and energy. This is the first Survey of Professional Forecasters to report projections for core inflation.

This survey also incorporates, for the first time, projections for inflation in the headline PCE price index. Like the headline CPI, which has been included in the survey since 1981, this index incorporates food and energy prices. The forecasters see headline PCE inflation averaging 2.1 percent this year before falling to 2.0 percent in 2008 and 2009. A difference in the outlook for inflation in a headline price index and the corresponding core price index reflects the influence of recent past or expected future changes in the prices of food and energy. The table below summarizes the current outlook for inflation and shows little difference between the headline and core forecasts in 2008 and 2009. On an annual basis, only the projection for core PCE inflation shows a hint of acceleration, with the projection rising from 2.0 percent in 2008 to just 2.1 percent in 2009. Notably, the forecasters have trimmed their forecasts for headline CPI inflation in this survey. Previously, they thought this measure would average 2.6 percent in 2007 and 2.5 percent in 2008.

Over the next five years, they expect headline CPI inflation to average 2.40 percent (annual rate). The forecasters peg CPI inflation over the next 10 years at an annual rate of 2.35 percent, down from the rate of 2.50 percent they reported in the last survey. Readers of this survey know that this is a surprising revision because the forecasters have been projecting 10-year annual average inflation of 2.50 percent since 1998. Using the responses of each forecaster available on our web page, we conducted an investigation of the revision by comparing the responses of this survey to those of the last one. There were 38 forecasters who participated in both surveys. Of these 38, seven raised their estimates in this survey, but 16 cut their estimates. The mean and median amounts by which the seven raised their estimates were 0.21 and 0.10 percentage point, respectively. The mean and median amounts by which the 16 lowered their estimates were 0.17 and 0.10 percentage point, respectively. When we recomputed the median estimate for each survey, using only the 38 responses of those who participated in both surveys, we found a long-run projection of 2.50 percent in the survey of 2006 Q4, the same estimate we reported last quarter for the full sample, and 2.40 percent in this survey, very close to the median estimate of 2.35 percent in this survey's full sample. We conclude that changing views on the long-run inflation outlook among those participants who submitted projections in both surveys accounts for some of the downward revision to the full-sample median estimates. Notably, eight forecasters participated in this survey who did not also participate in the previous one. The median estimate of these eight forecasters is 2.05 percent. This suggests that a changing composition of the panel of forecasters over the last two surveys also contributes to the downward revision to the consensus long-term CPI inflation outlook.

Headline PCE inflation is expected to average 2.10 percent over the next five years. Ten-year average PCE inflation will be 2.00 percent.

The current survey also marks the beginning of two new questions on probability ranges. We now ask the forecasters to provide their estimates of the chance that fourth-quarter over fourth-quarter core CPI and PCE inflation will fall into each of 10 different ranges in the each of the next two years. This helps analysts to assess the degree of uncertainty surrounding the forecasters' annual estimates of core inflation, discussed above. For core PCE inflation, the forecasters think there is a 38 percent chance inflation will be between 2.0 and 2.4 percent in 2007. There is also a substantial chance, nearly 35 percent, inflation will average between 1.5 percent and 1.9 percent.

Forecasters See Higher Growth, Stronger Labor Market in 2007

The forecasters have raised their estimates for real GDP growth this year. On a year-over-year basis, real GDP is seen growing 2.8 percent this year, up from the forecasters' previous estimate of 2.6 percent. A slightly stronger labor market will accompany the outlook for growth. Nonfarm payroll employment will increase at a rate of 135,000 jobs per month in 2007, up slightly from 119,000 previously, while the unemployment rate will average 4.7 percent, down from 4.8 percent.

The forecasters see real GDP growing 3.0 percent in 2008 and the unemployment rate rising to 4.8 percent.

Forecasters Trim Estimates for Long-Run Growth in Output and Productivity

In first-quarter surveys, the forecasters provide their long-run projections for an expanded set of variables, including growth in output and productivity, as well as returns on financial assets. Over the next 10 years, the forecasters now think real GDP will grow at an annual rate of 3.00 percent, down from their previous estimate of 3.20 percent. Labor productivity is seen growing 2.20 percent at an annual rate over the same period, down from 2.44 percent. The forecasters have raised their estimate of the returns to stocks and Treasury bills, to 7.50 percent and 4.50 percent, respectively, but they continue to think 10-year Treasury bonds will return 5.00 percent.

The Federal Reserve Bank of Philadelphia thanks the following forecasters for their participation in recent surveys:

Scott Anderson, Wells Fargo and Company; Robert J. Barbera, ITG Inc.; David W. Berson, Fannie Mae; Joseph Carson, Alliance Capital Management; Gary Ciminero, CFA, Rhode Island House Policy Office; Richard DeKaser, National City Corporation; Rajeev Dhawan, Georgia State University; Doug Duncan, Mortgage Bankers Association; Michael R. Englund, Action Economics, LLC; Gerard F. Fuda, Independent Economist; Stephen Gallagher, Societe Generale; James Glassman, JP Morgan Chase & Co.; Global Insight; Keith Hembre, First American Funds; David Huether, National Association of Manufacturers; William B. Hummer, Wayne Hummer Investments; Saul Hymans, Joan Crary, and Janet Wolfe, RSQE, The University of Michigan; Fred Joutz, Benchmark Forecasts and Research Program on Forecasting, George Washington University; Kurt Karl, Swiss Re; Dr. Irwin Kellner, Hofstra University/MarketWatch/North Fork Bank; Thomas Lam, UOB Group; L. Douglas Lee, Economics from Washington; Mickey D. Levy, Bank of America; Joseph Liro, Stone & McCarthy Research Associates; John Lonski, Moody's Investors Service; Dean Maki, Barclays Capital; Drew Matus, Lehman Brothers; Edward F. McKelvey, Goldman Sachs; Jim Meil, Eaton Corporation; Anthony Metz, Pareto Optimal Economics; Michael Moran, Daiwa Securities America; Joel L. Naroff, Naroff Economic Advisors; Mark Nielson, Ph.D., MacroEcon Global Advisors; Michael P. Niemira, International Council of Shopping Centers; Martin A. Regalia, U.S. Chamber of Commerce; David Resler, Nomura Securities International, Inc.; David Rosenberg, Merrill Lynch; John Ryding, Bear, Stearns, and Company, Inc.; David F. Selders, National Association of Home Builders; Xiaobing Shuai, Ph.D., Chmura Economics & Analytics; Allen Sinai, Decision Economics, Inc.; Tara M. Sinclair, Research Program on Forecasting, George Washington University; Sean M. Snaith, Ph.D., University of Central Florida; Constantine G. Soras, Ph.D., Verizon Communications; Neal Soss, Credit Suisse; Stephen Stanley, RBS Greenwich Capital; Susan M. Sterne, Economic Analysis Associates, Inc.; Thomas Kevin Swift, American Chemistry Council; David Teolls, General Motors Corporation; Lea Tyler, Oxford Economics USA, Inc.; Albert M. Wojnilower; Richard Yamarone, Argus Research Group; Mark Zandi, Economy.com; Ellen Beeson Zentner, Bank of Tokyo-Mitsubishi UFJ, Ltd.

This is a partial list of participants. We also thank those who wish to remain anonymous.

The Philadelphia Fed's Survey of Professional Forecasters was formerly conducted by the American Statistical Association (ASA) and the National Bureau of Economic Research (NBER) and was known as the ASA/NBER survey. The survey, which began in 1968, is conducted each quarter. The Federal Reserve Bank of Philadelphia, in cooperation with the NBER, assumed responsibility for the survey in June 1990.

For further information about the Survey of Professional Forecasters, contact:

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Federal Reserve Bank of Philadelphia
Ten Independence Mall
Philadelphia, PA 19106
e-mail: PHIL.SPF@phil.frb.org

Subscribe to the survey through our e-mail notification system. This HTML version contains partial results of the survey. More detailed tables are available elsewhere on our website.

NEXT SURVEY RELEASE (2007 Q2): May 14, 2007

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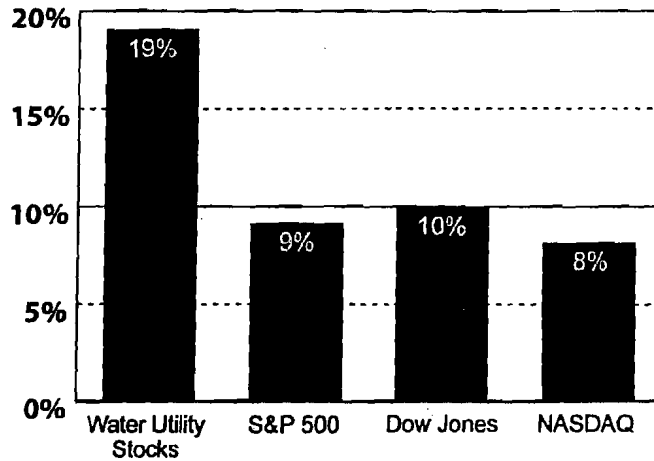
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Water Utility Stock Performance

Annual Return 10-Year Summary (1995-2005)*

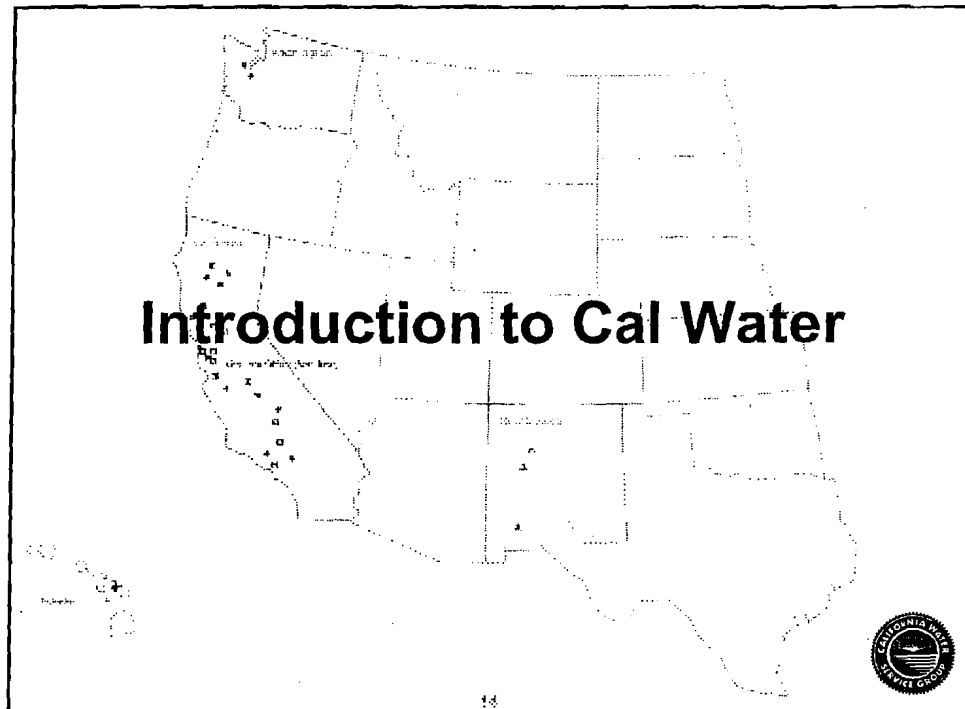


*Total returns. Source: Bloomberg Analytics (excludes water utilities acquired by other companies)



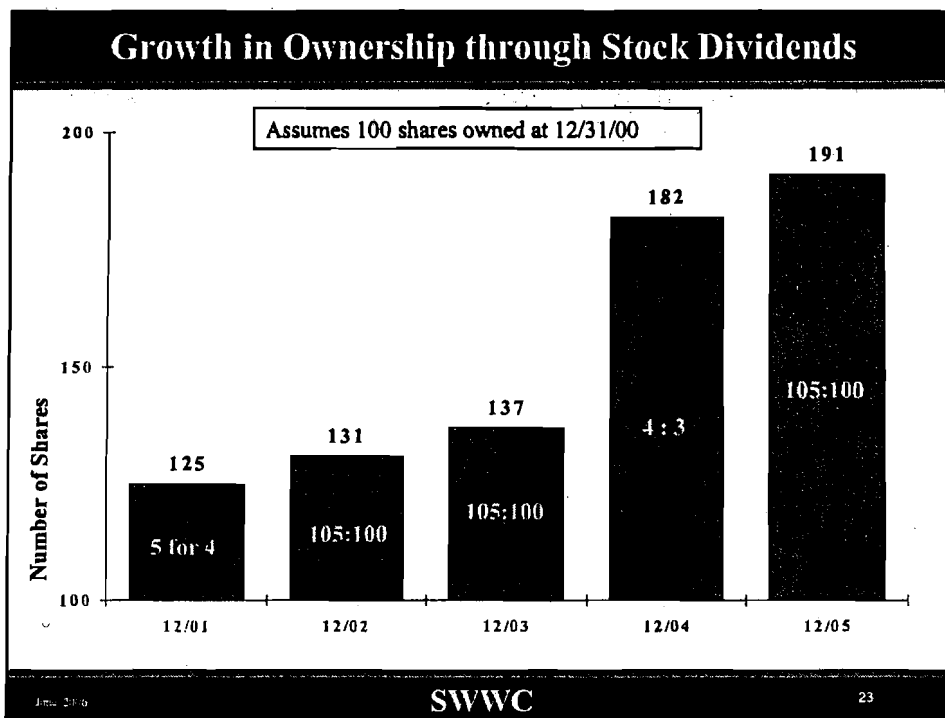
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Introduction to Cal Water



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Southwest Water Company December 1, 2005



10 year Total Return to Shareholders*

(1995-2005)	Company	Total Return
	Aqua America, Inc.	819%
	Southwest Water Company	766%
	SJW Corporation	412%
	Artesian Resources	411%
	York Water	354%
	Pennichuck Corp.	333%
	California Water Services	260%
	American States Water	249%
	Connecticut Water Services	202%
	Middlesex Water Co.	196%
	S & P 500 Index	138%

*Bloomberg Analytics

June 2006 SWWC 24

Analysts: Still Coming Up Rosy

Over-Optimism on Growth Rates Is Rampant, and the Estimates Help to Buoy Market's Valuation

BY KEN BROWN

WALL STREET IS pretty downcast these days, what with a \$1.5 billion settlement pending with regulators over stock-research conflicts, continuing layoffs at big securities firms and a stock market that is teetering yet again—not to mention a cold snap that could freeze the thumbs of Blackberry users.

Yet stock analysts are unshaken in their optimistic, if delusional, belief that most of the companies they cover will have above-average, double-digit growth rates during the next several years. That is, of course, highly unlikely. Historically, corporate earnings have grown at about the same rate as the economy over time, and few expect the economy to grow at a double-digit rate any time soon.



HEARD ON THE STREET

But analysts refuse to bend to reality. Of the companies in the Standard & Poor's 500-stock index, analysts expect 345 of them to boost their earnings more than 10% a year during the next three to five years, and 123 companies to grow more than 15%, according to Mulfex, a stock-market-data firm.

"Hope springs eternal," says Mark Donovan, who manages Boston Partners Large Cap Value Fund. "You would have thought that, given what happened in the last three years, people would have given up the ghost. But in large measure they have not."

These overly optimistic growth estimates also show that, even with all the regulatory focus on too-bullish analysts allegedly influenced by their firms' investment-banking relationships, a lot of things haven't changed: Research remains rosy and many believe it always will.

In some ways, these high estimated growth rates underpin the market's current valuation, which remains pricey by historical standards. Investors expect to pay a higher price for stocks that are growing strongly. So if people realize these long-term growth-rate numbers are largely fictional, then a pillar of support for the market's valuation—the S&P 500 currently trades at a price-to-earnings ratio of 18.5 based on 2002 earnings—could go out of the stock market, sending prices lower.

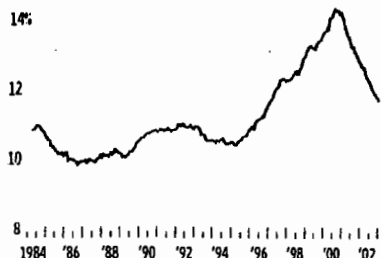
The long-term growth figures come from the

Great (Double-Digit) Earnings-Growth Expectations

Historically, growth in corporate earnings has slightly lagged nominal growth in gross domestic product. In other words, profits can only grow as fast as the economy. Right now, optimistic Wall Street analysts expect earnings to defy history and grow far faster than that.

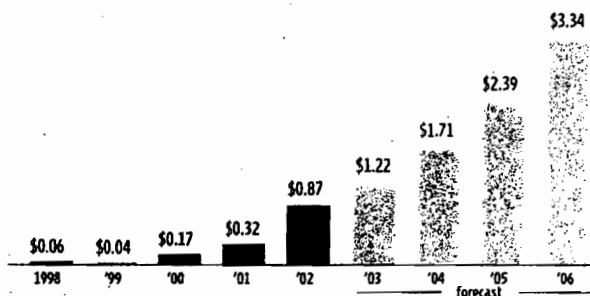
Analysts are still expecting earnings to grow an average of 12%...

Consensus forecasts for the long-term (three- to five-year) growth rates of the companies in the S&P 500.



And the growth rate required to match analysts' forecasts for some companies is ambitious

Chart at right shows eBay's actual earnings per share for the past five years and forecast earnings per share at the 40% annual growth rate analysts are anticipating for the company



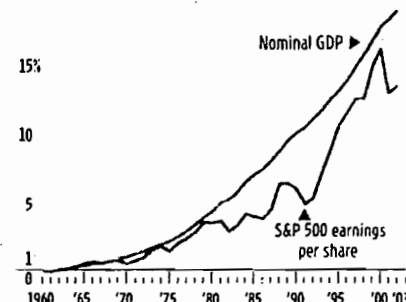
* Shown by setting each to 1 in 1960, and indexing their growth; GDP and earnings figures used are nominal, or not adjusted for inflation
Sources: IBES: Bureau of Economic Analysis; Standard & Poor's; Morgan Stanley; WSJ Market Data Group

earnings estimates Wall Street analysts post for the companies they cover. Besides issuing buy and sell recommendations and predicting earnings during the next few quarters, analysts typically estimate how quickly the companies' earnings will grow during the next few years. Such long-term growth-rate numbers, which are imprecise by nature, give a hint of how analysts feel about companies' future prospects.

A long-term growth-rate number is often used by investors to determine whether a stock is cheap or expensive. Online auctioneer eBay Inc., for example, trades at a price-to-earnings ratio of 88 based on the past year's earnings. Some investors

But earnings growth hasn't historically surpassed economic growth

Cumulative growth in GDP and in earnings per share of S&P 500 companies since 1960.*



take solace in the fact that the company is expected to expand earnings 40% a year, but even with that growth, it would take until 2006 for the company's price-to-earnings ratio to fall to 22, assuming the stock price remained stalled at today's level.

These rosy figures come on top of three years of little or no growth for many companies. For example, Charles Schwab Corp. hasn't grown at all since 2000 as it has struggled with the stock-market collapse. But analysts, on average, still expect the company will expand its earnings 18% a year during the next several years. While that

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22.95	327.04	-21.76	-2.10
53.64	7342.84	-22.70	-2.01
82.26	219.50	-28.63	-2.02
62.69	771.87	- 2.39	-1.04

L FUNDS

	DAY'S % CHANGE	YTD RETURN	52-WK RANGE
	-2.92	-2.2	-23.6
	-2.93	-2.0	-22.7
	-1.96	-1.9	-14.9
	-2.72	-2.7	-16.8
	-2.13	-0.5	-20.6
	-1.65	-2.6	-10.8
	-2.44	-2.2	-19.0
	-0.92	-2.0	-14.0
	-1.32	-0.8	-15.2
Amer;	-0.97	-0.4	- 4.9
	+0.10	+0.5	+ 9.5
	+0.09	+0.2	+ 9.2
	+0.10	+0.1	+ 7.8
	+0.09	+0.4	+ 9.2
	+0.14	+0.4	+ 5.0

PRELIM CLOSE	PERCENT CHANGE FROM		
	PREVIOUS CLOSE	WEEK AVER	DEC 31
2310.95	-2.67	-5.11	-1.46
1712.69	-2.68	-5.32	-2.05
7180.29	-2.65	-5.59	-2.18
1868.62	-2.53	-4.88	-0.89
5097.00	-2.49	-4.70	-1.01
2981.44	-2.26	-5.15	-1.34
452.23	-2.35	-4.50	-1.35
448.51	-2.16	-4.62	-1.71
658.32	-2.10	-4.74	-1.65
352.12	-2.39	-4.84	-1.93
259.26	-2.05	-4.62	-2.15
397.12	-1.80	-4.32	-1.78
3138.81	-2.52	-5.58	-2.59
426.73	-3.17	-5.76	-1.60
549.06	-0.59	-4.06	-1.60
4047.07	-1.62	-3.35	-1.12

247.13	+0.08	+0.25	+0.20
285.92	+0.16	+0.54	+0.41
389.97	+0.20	+0.65	-0.01
424.46	+0.15	+0.31	+0.28
1020.52	+0.23	+0.68	+0.34

Analysts: Still Coming Up Rosy

HEARD ON THE STREET Not surprisingly, the glow is rosiest in the technology sector. Of the 91 tech companies in the S&P 500, analysts expect 62 to grow faster than 10% a year, and 18 to grow better than 20% a year, meaning tech companies account for more than half of the index's 35 top growers.

To be sure, many of these companies could actually meet those growth expectations. If only because earnings have been in such a slump they are bound to rebound at some point. Analysts expect Schwab, for example, to earn 40 cents a share in 2003, up from the 29 cents it earned last year. If the analysts are right, that would be a healthy 38% jump in earnings.

But some also concede that their growth rates are optimistic. Guy Moszkowski, who covers Schwab for Salomon Smith Barney, and whose long-term growth estimate of 18% matches the consensus, concedes that this figure might be optimistic in the years after the expected short-term earnings pop. "If we can get enough of a recovery in the market that they can achieve that 40 cents in earnings, then they'll be on the way to establishing a kind of mid-teens growth track," he says. "But I think it's really hard to make the case they can do much better than that."

Mark Constant, who covers the company for Lehman Brothers and has a 15%-a-year growth estimate, also says the company probably won't reach his target. "I've always characterized it in print as an optimistic growth rate," he says.

If it were true that analysts were expecting a rebound following the current slump and ratcheting up their expectations accordingly, they might now be able to argue that they aren't being overly optimistic. The truth is, however, they have been growing increasingly pessimistic since the tech-stock bubble burst. Back in mid 2000, when earnings had been soaring for years, analysts were predicting that earnings for the S&P 500 would continue growing 15% a year, according to Morgan Stanley. Now, they are predicting 12% annual earnings growth for these same companies.

NEW YORK—Among recent stock-listing changes, **Communications Systems Inc.**, previously trading on the **Nasdaq Stock Market**, is trading on the **American Stock Exchange** using the new symbol **JCS**. On the **National Market**, **Briazz Inc.**, **Matritech Inc.** and **Repron Electronics Inc.** are trading on the **Nasdaq SmallCap Market** using same symbols, respectively **BRZZ**, **NMPS** and **REPT**.

You can't blame analysts for everything, though. Companies themselves are guilty of being overly optimistic as well. "I think there's an immense amount of inertia in the system. That's the problem," says Steve Galbraith, Morgan Stanley's chief investment strategist. "One of the things people are struggling with are creative ways of reducing your guidance without reducing your guidance."

The problem, he adds, is that many companies set their growth expectations a decade ago, when interest rates and inflation were higher than today. Growth rates are measured in nominal terms, meaning inflation gives them a boost. With virtually no inflation and interest rates near zero, it is harder for companies to post double-digit growth. "I do think this is something that corporate America broadly is wrestling with: How do we ratchet down expectations that we set 10 years ago when things were different?" he says.

The danger comes from companies that can't face the reality that their growth has slowed. "Where I think clients should get concerned is where a company is claiming they're a 15% grower and they're setting their capital expenditures accordingly," Mr. Galbraith says. If the market is pricing in that level of growth, then the company will likely keep investing in itself in an attempt to keep returns high. The danger of that: Companies could be throwing away capital that could be given back to investors in the form of dividends or share buybacks.

Every chief financial officer who took Corporate Finance 101 knows that the bigger the portion of earnings a company reinvests in its business, the faster it can conceivably grow. Sending cash out to investors reduces the amount the company can invest in itself, ultimately lowering its potential growth rate.

But there are signs—including Microsoft Corp.'s plan to pay a dividend—that executives are starting to realize that reinvesting all their excess cash in their own business might not produce the highest returns. "It hasn't gotten quite that far, but I think it's going to get there," says Jeff van Harte, who manages Transamerica Premier Equity fund. "It just takes a long time to change attitudes. Some companies are forever lost."

NEW YORK—Phillip Morris Cos. officially changed its name to Altria Group Inc.

The trading symbol for the stock, a member of the 30-stock Dow Jones Industrial Average, will remain MO. The stock's listing will move to the "A" section of the stock tables, from the "P" section.

Philip Morris announced stockholder approval for the name change at last year's annual meeting in April. The company's consumer-product companies will retain their current identities—Philip Morris U.S.A., Philip Morris International and Kraft Foods Inc.

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6.4	43.10	27.83	CACI Inc. CACI
-1.2	24.57	32.50	GE Ind. GE
-1.2	16.20	10.90	GE Pwr AD5
-4.5	40.94	38.90	CBL Assoc CBL
-10.9	32.55	18.25	CBL Cyn CBL
-8.1	29.95	23.90	CEC Envt CEC
-6.7	31.29	12.57	CGI Grp CGI
-8.1	21.29	10.51	CNG Tel CNG
-5.5	52.39	31.90	CN Energy CNG
7.8	11.31	11.35	CIGNA CH
1.9	24.05	13.80	CIT Grp CIT
1.4	12.85	1.01	CNE Retail CNE
-35.7	32.89	5.45	CMS Envt CMS
-1.9	12.95	21.81	CNA Fnd CNA
-1.9	16.60	7.41	CNA Surety SUM
-4.5	18.25	17.36	CNF CNF
-13.8	6	2.75	CNI Global CNI
-1.2	30.64	30	CNOOC AD5 CEO
2.9	11.24	13.82	CPI Inc CPI
-2.7	19.43	15.65	CPI Co CPI

Program Trading

NEW YORK—Program trading accounted for 3.6%, or an average daily, of New York Stock Exchange executed an additional 344.4 million trading away from the NYSE, with 10 foreign markets. Program trading chase or sale of at least 15 different of \$1 million or more.

Of the program, total of the NYSE arbitrage in this strategy, traders stock index options and futures to c. ences. Less than 0.5% involved i strategies. Index arbitrage can be a manner when the Dow Jones Indus points or more from its previous de

Some 51.4% of program trading their clients, while 43.1% was done principal trading. An additional 5.5% former facilitation, in which firms use date customer trades.

Of the five most-active firms over Stanley and UBS AG's UBS Warbu program trading as principal for the Sachs Group, RBC Dominion and Deutsche Bank Securities executed all trading activity for customers, as of NYSE PROGRAM

Volumes in millions of shares

TOP 15 FIRMS	INDEX	DELTA
	1992	PERCENTAGE
Morgan Stanley	142.2	
Goldman Sachs Group	91	
Deutsche Bank Securities	83	
UBS Warburg		
RBC Dominion	63.9	
Credit Suisse First Boston	57	
Interactive Brokers		
Bar Shearman		
London Brothers	7.0	
Merrill Lynch	1.0	
Morgan Securities	56.5	
Salomon Smith Barney		
Helland Group		
BNP Paribas Belg Svs		
Schwab-Nunnen Burg Svs	4.1	
OVERALL TOTAL	218.3	

* Other derivative-related strategies trace

Source: N



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9% Forever?

That's economist Roger Ibbotson's forecast for stock market returns. HE'S BEEN RIGHT—very right—in the past. So how come some people think we shouldn't believe him anymore?

By JUSTIN FOX
December 26, 2005

FORTUNE

(FORTUNE Magazine) — In May 1974, in the depths of the worst bear market since the 1930s, two young men at a University of Chicago conference made a rash prediction: The Dow Jones industrial average, floundering in the 800s at the time, would hit 9,218 at the end of 1998 and get to 10,000 by November 1999.

You probably have a good idea how things turned out: At the end of 1998, the Dow was at 9,181, just 37 points off the forecast. It hit 10,000 in March 1999, seven months early. Those two young men in Chicago in 1974 had made one of the most spectacular market calls in history.

What became of them after that? One, Rex Sinquefeld, went on to found a mutual fund company that now manages more than \$80 billion. The other, Roger Ibbotson, kept making market forecasts, forecasts of long-run stock and bond returns that have become deeply woven into the fabric of American life. Simply put, if you believe that stocks are fated to return 10% on average over the long haul, Ibbotson is probably the reason why.

It's hard to overestimate the influence of those numbers. The forecasts and historical return data churned out by Ibbotson Associates transformed the pension fund business in the late 1970s and 1980s, leading managers to make an epic shift out of bonds and into stocks. They formed the inescapable backdrop to the 1990s personal investing boom, as brokers, financial planners, and journalists endlessly repeated the Ibbotson mantra of double-digit stock market returns as far as the eye could see. Lately the Ibbotson forecasts have been finding their way into 401(k)s, as Ibbotson and other firms using similar methods build portfolios for those who opt not to build their own. Ibbotson even sells hundreds of thousands of charts each year showing how stocks build wealth over time—and beat the crap out of bonds.

All this means it's of more than academic interest that an academic debate has been raging for years now over the theories upon which Ibbotson and Sinquefeld based their forecast in 1974, and which Ibbotson has followed since. Ibbotson, now 62, has taken some of the criticism to heart, and in the process ratcheted down his long-run forecast for stock returns from more than 10% a year to 9.27%. That alone was something of a shock for many of his clients, Ibbotson says. But a few critics think the real number may turn out to be just 5% or 6%. In that case stocks would barely outperform government bonds—an eventuality that would entirely rearrange the investing world yet again.

...

The most important thing to understand about the forecast that Roger Ibbotson and Rex Sinquefeld churned out in 1974 is that it wasn't an attempt to outsmart or outguess the market as Wall Street seers had traditionally done. Instead, Ibbotson and Sinquefeld were simply trying to use the information already embedded in stock prices to, as they put it, "uncover the market's 'consensus' forecast." Their tools were a half-century of historical data and the bold new philosophy of stock market behavior that they had internalized as students at the University of Chicago's Graduate School of Business.

They did it at a time when theories batted about in Chicago classrooms really were changing the world, or were about to. In the early 1970s, Ibbotson says, "everything was going on at the University of Chicago." The professors on his Ph.D. dissertation committee included two future Nobel Prize winners (Merton Miller and Myron Scholes), another who would have won if he hadn't died before the Nobel committee got to him (Fischer Black), yet another whom many colleagues think should win the Nobel (Eugene Fama), and a father of Reagan-era supply-side economics (Arthur Laffer).

Not counting the Black-Scholes options-pricing formula and the Laffer curve, which don't have major roles in this drama, the biggest ideas at the Chicago Business School in the early 1970s were the efficient-market hypothesis and the capital asset pricing model. The gist of the efficient-market idea, as articulated in the 1960s by Eugene Fama, is that today's price is the best possible measure of a stock's value, and that nobody can reliably predict which way prices will be headed tomorrow. The capital asset model says that you nonetheless can predict long-run stock returns because they are a reward for taking risks, and those risks can be measured. While CAPM, as it is known, was devised elsewhere, Chicago's Fischer Black was among its most fervent adherents.

Ibbotson arrived on campus in 1968. He was a kid from the Chicago suburbs who studied math and physics at Purdue and got an MBA at Indiana University. After struggling in the workforce, he went to Chicago to earn a Ph.D. in finance and hit his stride. While still a student, he got a job managing the university's bond portfolio. Meanwhile his friend Sinquefeld, a 1972 MBA working at a Chicago bank, was launching one of the first S&P 500 index funds for institutional investors (this when Vanguard was still but a gleam in Jack Bogle's eye). Chicago really was a heady place for young finance geeks in those days.

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Ibbotson and Sinquefeld both needed up-to-date historical data on security prices for their work, and both knew that the professors who ran the Chicago business school's Center for Research in Security Prices (CRSP) were in no hurry to repeat the epic number-crunching exercise they had undertaken in the early 1960s to build a database of stock prices going back to 1925. So the two men took on the job of updating the CRSP (pronounced "crisp") stock database and assembling a similar price history for bonds and Treasury bills.

They presented their preliminary findings in May 1974 at one of the twice-yearly seminars that CRSP hosted to share the latest academic research with bankers, mutual fund managers, and the like. "Just getting the data was a coup," Ibbotson says. Then there was the forecast, suggested to them by Fischer Black. Black thought of using the data to calculate the additional return that investors had historically received for investing in risky stocks rather than in relatively safe government bonds. According to CAPM theory, this "risk premium" reflects something real and durable about the rewards investors demand for taking the chance of losing money. Real and durable enough, it seemed in 1974, to build a stock market prediction on.

Once Ibbotson and Sinquefeld figured out the historical risk premium, all they had to do was add it to the prevailing risk-free interest rate (Treasury bonds or bills, depending on one's planning horizon) to get the "consensus" forecast of market returns. Actually they made it a little more complicated than that: When they finally published their work in 1976, they presented their forecast as the middle point of a wide range of different possible results. The mean forecast for the 25 years through 2000 was for 13% annual stock market returns, with 95% confidence that the return would be between 5.2% and 21.5%. (The actual return was 15%.)

"In some ways it was the first scientific forecast of the market," Ibbotson says proudly. Not everyone saw it that way at the time; some skeptics complained it was just a gussied-up extrapolation of the past into the future. But there turned out to be a ravenous hunger for such data. Both researchers were swamped with requests for more information and advice. For a while Ibbotson, by this time a very junior professor of finance at Chicago, just let the letters pile up unopened in a drawer in his office. In 1977 he decided to make a business out of his research project and started Ibbotson Associates. He also kept teaching at Chicago—until 1984, when his wife, health economist Jody Sindelar, got a job at Yale and he wangled an appointment there as a finance professor. Since then he's left the day-to-day management of the company, still based in Chicago, in the hands of others, while he remains its public face and chief researcher. Sinquefeld, meanwhile, launched small-cap index fund manager Dimensional Fund Advisors with another Chicago finance graduate, David Booth, in 1981.

While Ibbotson Associates grew and prospered in the 1980s and 1990s, however, the theories upon which its forecasts are based began to crumble in the face of contradictory evidence. The initial onslaught came from skeptics of the efficient-market hypothesis like Ibbotson's Yale colleague Robert Shiller, who argued that investor mood swings drove stock prices too high or too low for years on end. The experience of the late 1990s confirmed to many that there was something to this. But Ibbotson says he can't base his forecasts on such arguments. "It's not that I believe markets are so efficient," Ibbotson says. "It's just that I don't want to use a mispricing to make predictions." He's trying to divine a middle-of-the-road consensus, not trot out a CNBC-style market call. Fair enough.

A harder-to-dismiss critique came from Mr. Efficient Markets himself, Ibbotson's dissertation advisor Eugene Fama. In a series of papers written with Dartmouth's Kenneth French, Fama has argued that the capital asset pricing model, or at least its 1970s corollary that the risk premium is constant, doesn't match the facts. "My own view is that the risk premium has gone down over time basically because we've convinced people that it's there," Fama says. Ibbotson's stock market forecasting model is thus a victim of its own success.

Ibbotson agrees that Fama has a point, and that he can no longer bank on the historical equity premium to predict future returns. The alternative he has come up with is an estimate based on fundamentals. He takes the 10.31% annual return on stocks from 1925 through the present and strips out the tripling of the market's price/earnings ratio that's occurred since then. "We think of that as a windfall that you shouldn't get again," he says. The drivers of stock returns that remain are dividends, earnings growth, and inflation. Make a forecast of future inflation using current bond yields, assume that dividend and earnings growth history will repeat themselves, and you get a long-run equity-return forecast of 9.27%. When Ibbotson and his company's director of research, Peng Chen, first ran the numbers in 2001, the gap between the new forecast and the one using the equity premium method was more than a percentage point. Because P/E's have dropped since then, the gap has shrunk. But Ibbotson's revised forecasting method doesn't insulate him from criticism any more than the old way. In fact, it invites new criticism.

The most persistent challenger has been Rob Arnott, a Pasadena money manager and editor of the Financial Analysts Journal, who thinks future equity returns could be below 6%. (See "Dueling Market Forecasts" chart.) The big difference between his forecast and Ibbotson's is that Arnott uses the current dividend yield (1.76%) as a starting point, while Ibbotson goes with the much higher long-term average yield (4.23%). Ibbotson believes the historical number provides a better picture of what investors think is ahead. He still relies on the assumption that markets are efficient, so current dividend yields must be low for a reason—his guess is that investors are expecting big growth in earnings (and dividends) in the future. Arnott, whose research has shown that low yields in the past were followed by slow earnings growth, thinks that's balderdash. "One of my biggest beefs with the academic community is the notion that theory is fact," he complains. "When they find evidence that contradicts the theory, instead of saying, 'Wonderful, let's improve the theory,' they throw it out because it conflicts with theory."

But the theoretical assumption that the market knows best is central to Ibbotson's whole forecasting endeavor, something even Arnott acknowledges. "In a sense Ibbotson is trying to infer what the consensus view is," Arnott says. "I'm trying to profit from that consensus." What Ibbotson is telling us is that the market still believes stocks will handily outperform bonds over the long haul. And if the market turns out to be wrong about that, it won't just be Roger Ibbotson who feels the pain.

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I D E A
exchange

Building the Future From the Past*



WENDY HARRIS

BY ROGER G. IBBOTSON

Professor in the
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Yale School of
Management

UNTIL THE LAST TWO YEARS, INVESTORS had not seen consecutive negative annual stock market returns since the 1970s. In contrast, during the 1980s and 1990s the market produced its best 20-year performance ever. But neither the last two years nor the last two decades are good predictors of the long run.

A forecast usually begins by comparing the expected return on stocks with that of a low-risk asset, such as U.S. government bonds. This differ-

ence is called the equity (stock) risk premium, because it is likely to be positive and represents the extra payoff that an investor demands (but does not always get) for investing in something risky (stocks) compared with something nearly risk-free (government bonds). Thus, the bond yield is our starting point, and adding the equity risk premium gives us the expected return on stocks.

Generally, the best way to get a sense of what the future may bring is to look at the past. After all, the past is our primary source of data. But, as you already know from recent market results, the stock market is quite

volatile. The only way to get a good representation is to look back over a long period of time, so that the ups and downs of the market tend to cancel out and we get a reasonable average.

The compound average annual nominal rate of return (including inflation) for common stocks was 10.7 percent over the period 1926–2001. This return exceeded long-term U.S. Treasury yields by over 5 percent per year. That difference was the historical equity risk premium—the amount of extra return investors got over the last three-quarters of a century for invest-

ing in stocks rather than bonds.

But looking at historical stock returns relative to bond income is not the whole picture. The bull market of the 1980s and 1990s had so much of an impact on stock prices that the price of stocks in the S&P 500® Index is almost 30 times the earnings of the same companies. This contrasts with a price/earnings (P/E) ratio closer to 10 back in the 1970s—and only

about 14 over the whole 76 years. This growth in the P/E ratio is not expected to repeat in the future. Thus, to a certain extent, the stock market has outrun the underlying real earnings power of corporations.

A long-term forecast should not extrapolate the separation of the P/E ratio indefinitely. But today's high P/E ratios are not necessarily going to soon revert to historical levels, because the prices reflect the future outlook of investors—all those people and institutions that hold, buy, or sell stocks. In fact, if today's P/E ratio is higher than in the past, it has to mean one of three things: The price is now unrealistically high, people are willing to accept a much lower expected return for the

risk of stocks, or the market is optimistic that the earnings per share growth of corporations will be higher than it was in the past.

In fact, I believe in the market's optimism. Earnings per share will grow at faster rates for two reasons. First, corporations are paying out lower dividends and retaining more earnings. These extra retained earnings are reinvested back into firms. If the money is used productively, extra growth can be achieved.

continued on page 12

Stock Returns for a New Century*

BY JOHN Y. CAMPBELL



Professor of Applied
Economics,
Harvard University

WHAT RETURNS SHOULD INVESTORS expect the U.S. stock market to deliver on average during this century? Does the experience of the last century provide a reliable guide to the future?

Perhaps the simplest way to try to forecast future returns is to use some average of past realized returns, but there are serious difficulties with this approach. Stock returns are so variable that even an average measured over a century is an unreliable guide to the true long-term average. Also, if the expected future stock return is not constant, but changes over time, it can have a perverse

have happened during the long bull market of the 1980s and 1990s.

An alternative approach is to forecast future returns using valuation ratios—ratios of stock prices to accounting measures of value, such as dividends or earnings. One variant of this approach, known as the Gordon growth model, breaks returns into income

consistent with average realized returns. For instance, from 1871–2001, the average dividend/price ratio was just under 5 percent, while the average real growth rate was just over 2 percent, adding to about 7 percent, which is the long-term compound average realized stock return in real terms, that is, correcting for inflation. The average earnings/price ratio was also close to 7 percent.

But current valuation ratios are wildly different from historical averages, reflecting the unprecedented 20-year bull market that ended about two years ago. The dividend/price ratio, for example, has fallen dramatically to about 1.5 percent. In part, this may be due to a shift in corporate financial policy away from paying dividends and toward repurchasing shares. One way to correct for this is to add repurchases to conventional dividends, but this still implies a dividend/price ratio of only about 2.5 percent. The earnings/price ratio has also declined. In the short term, this ratio may be affected by temporary cyclical fluctuations in earnings. But even correcting for this, the earnings/price ratio is about half its long-term historical average.

The implications of current valuations for future returns depend on

effect on the average realized return: Consider what happens if the expected future stock return declines—perhaps because investors have become more comfortable with equity (stock) market risk and require a smaller compensation for bearing it. Investors' willingness to reduce their equity risk premium itself tends to drive up the price of stocks, causing an increase in realized returns. Thus, at precisely the wrong time, when the expected future stock return is declining, the average of past stock returns will actually increase. This may well

(the dividend/price ratio) and capital gains (the long-term average growth rate of dividends). Return is estimated by the dividend/price ratio plus the dividend growth rate. Another variant argues that stock returns come from corporate earnings: Earnings that are paid out generate income, while earnings that are reinvested generate growth. In the long run, both components of earnings are equally valuable and thus return should equal the earnings/price ratio.

Over long periods of time, these formulas have given results that are

*Ibbotson's and Campbell's columns refer to returns on the S&P 500® Index, in nominal terms and real (inflation-adjusted) terms respectively.

continued on page 12

exchange

Building the Future From the Past continued from page 10

Second, investors are rationally willing to pay high prices for current earnings when they think future earnings will grow. The evidence demonstrates that over time investors who buy when the market's P/E ratios are high do just about as well as those who buy when the market's P/E ratios are low.

Stocks are predicted to outperform bonds in the future, but not by further P/E ratio increases.



Instead, stocks will tend to participate with the overall U.S. economy and earnings per share growth. My forecast for stocks is somewhat less than 4 percent in excess of long-term bond yields. Applying this premium to recent bond yields gives a long-term forecast of over 9 percent for the stock market. It is high, but lower than the historical stock market return. But, of course, there is no free lunch. The

reason stocks are expected to outperform bonds is that they are riskier than bonds. Although stocks belong in most people's portfolios, the smart investor will still want to diversify across different types of stocks, as well as across bonds and other asset classes.



To learn more about Ibbotson's research, go to <http://mba.yale.edu/faculty/professors/ibbotson.htm>.

Stock Returns for a New Century continued from page 11

whether the market has reached a new steady state, in which current valuations will persist, or whether these valuations are the result of some transitory phenomenon.

If current valuations represent a new steady state, they imply a substantial decline in the equity returns that can be expected in the future. The future expected stock return might be 3.5 percent to 4.5 percent, rather than the historical average of 7 percent. This would allow for only a very modest equity premium relative to Treasury bills or inflation-indexed Treasury bonds, which currently offer a safe 3.5 percent real yield.

If current valuations are transitory, it matters critically what happens to restore traditional valuation ratios. Rapid earnings and dividend growth could restore traditional valuations without any decline in stock prices. While this is always a possibility, it would be historically unprecedented. The U.S. stock market has an extremely poor record of predicting

long-term earnings and dividend growth. Historically, stock prices have increased relative to earnings during decades of rapid earnings growth, such as the 1920s, 1960s, and 1990s, as if the stock market anticipates that rapid earnings growth will continue in the next decade. But there is no systematic tendency for a profitable decade to be followed by a second profitable decade. The 1920s, for example, were followed by the 1930s, and the 1960s by the 1970s. Thus, stock market optimism often fails to be justified by subsequent earnings growth.

A second possibility is that stock prices will decline or stagnate until traditional valuations are restored. This has occurred at various times in the past after periods of unusually high stock prices, notably in the 1900s, 1910s, 1930s, and 1970s. This would imply extremely low and perhaps even negative returns during the adjustment period and then higher returns afterward.

It is too soon to tell which of these

views is correct, and I believe it is sensible to put some weight on each. That is, I expect valuation ratios to return part way but not fully to traditional levels, with the adjustment coming primarily from stock prices rather than earnings growth. A rough guess for the long-term stock return, after the adjustment process is complete, might be a compound average real equity return of 5.0 percent to 5.5 percent, corresponding to an equity premium of 1.5 percent to 2.0 percent.



To learn more about Campbell's research, go to <http://post.economics.harvard.edu/faculty/campbell/campbell.html>.

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Equity Risk Premiums: Looking backwards and forwards...

Aswath Damodaran

Aswath Damodaran

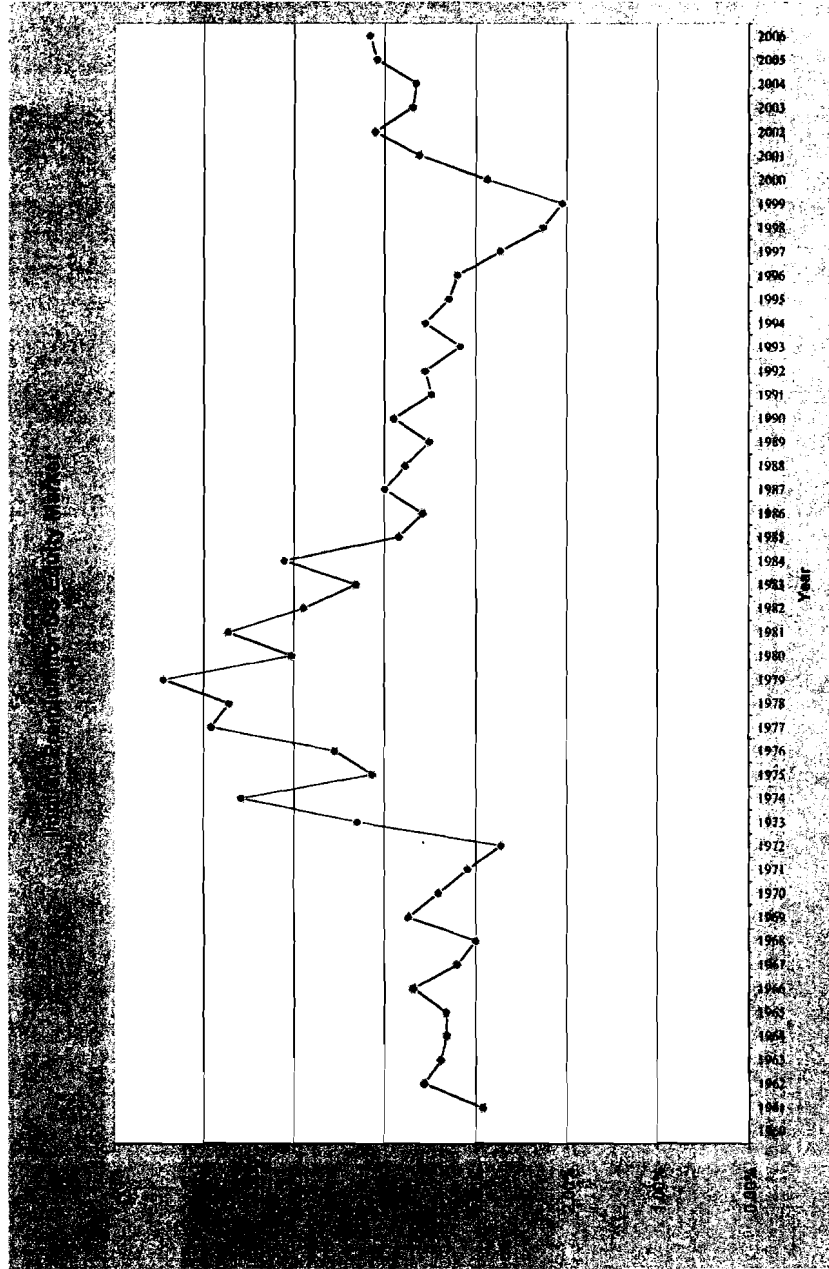
Implied Equity Premiums

We can use the information in stock prices to back out how risk averse the market is and how much of a risk premium it is demanding.

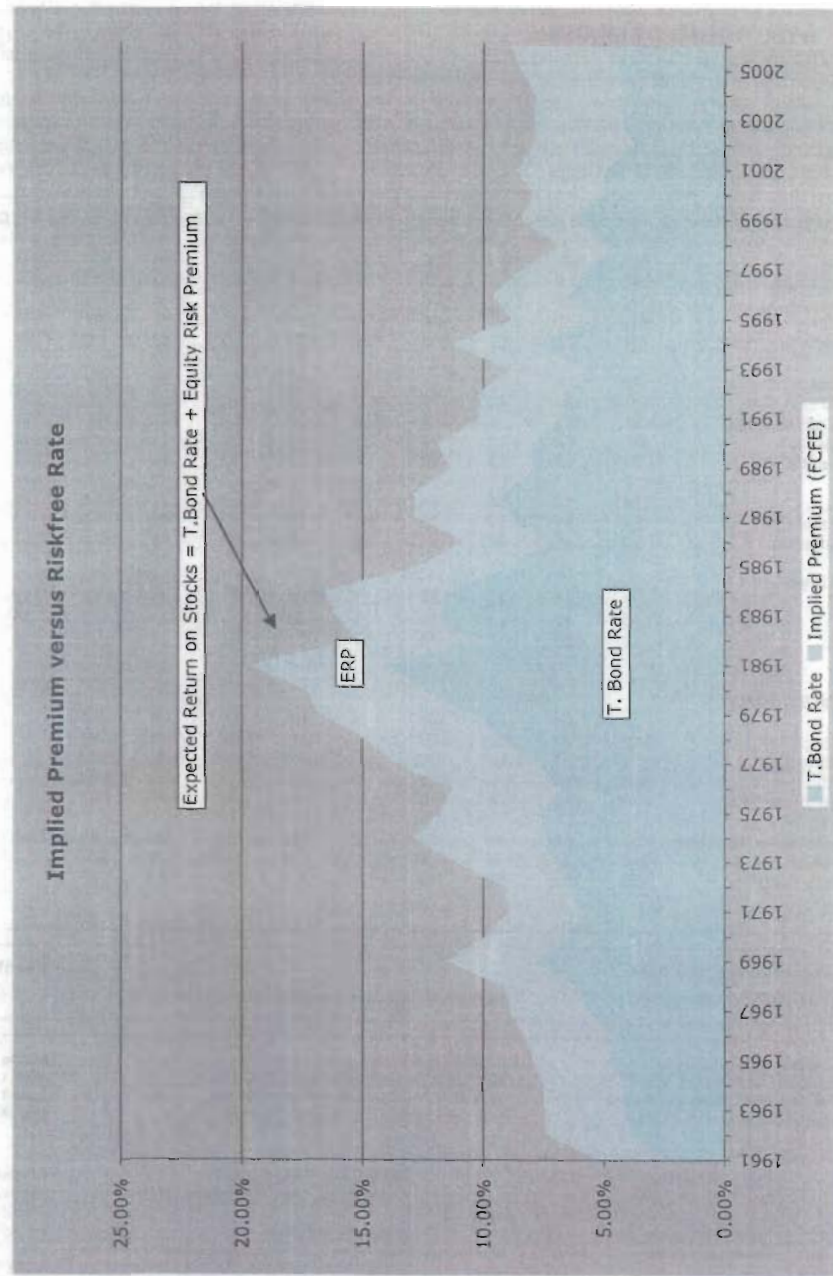
■ If you pay the current level of the index, you can expect to make a return of 8.86% on stocks (which is obtained by solving for r in the following equation)

■ Implied Equity risk premium = Expected return on stocks - Treasury bond rate = 8.86% - 4.7% = 4.16%

Implied Premiums in the US



Implied Premium versus RiskFree Rate



February 23, 2007

ECONOMIC SERIES

2100

Value Line's estimates of sales and earnings growth for individual companies are derived by correlating sales, earnings, and dividends to appropriate components or subcomponents of the Gross Domestic Product, presented below. A more detailed forecast appears periodically in Selection & Opinion.

HYPOTHESIZED ECONOMIC ENVIRONMENT 3 TO 5 YEARS HENCE

The hypothesized 2010-2012 economic environment into which earnings are forecast is as follows: Unemployment will average 4.6% of the national labor force, compared to 4.6% in 2006. There will be no major war in progress at that time. Industrial production will be expanding about 2.7% per year. Inflation will continue to be modest. Prices as measured

by the broad-based GDP deflator will advance about 2.3% per year on the average. The corporate income tax rate will be around 35%. Long-term interest rates on high-grade corporate bonds are projected to be about 6.5% in the years 2010-2012. We expect the Federal Reserve to pursue fairly accommodative policies except in years in which the economy is overheating. Based on these assumptions, the Gross Domestic Product will average \$17,080 billion in the years 2010-2012, a level that is about 29% above the estimated 2006 total of \$13,254.

Things may turn out differently. But in the absence of knowledge of the future, we use the above assumptions, which appear to be most plausible. Thus we are able to apply a common economic environment to all stocks for the purpose of measuring relative growth potential.

THESE ARE THE NATIONAL INCOME SERIES TO WHICH VALUE LINE SALES, EARNINGS, AND DIVIDEND ESTIMATES ARE CORRELATED

ANNUAL STATISTICS	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006*	2007*	2008*	2010-12*
Gross Domestic Product (\$Bill.)	7817	8304	8747	9268	9817	10128	10470	10961	11712	12456	13254	13916	14613	17080
Real GDP (2000 Chained \$Bill.)	8329	8704	9067	9470	9817	9891	10049	10301	10704	11049	11422	11741	12093	13305
Total Consumption (\$Bill.)	5619	5832	6126	6439	6739	6910	7099	7295	7577	7841	8092	8354	8605	9458
Nonresidential Fixed Investment (\$Bill.)	834	934	1038	1133	1232	1180	1072	1082	1146	1224	1315	1387	1447	1640
Industrial Prod. (% Change, Annualized)	4.3	7.4	5.9	4.4	4.4	-3.4	-0.3	0.6	4.1	3.2	4.1	1.8	2.2	2.7
Housing Starts (Mill. Units)	1.47	1.47	1.62	1.65	1.57	1.60	1.71	1.85	1.95	2.07	1.82	1.56	1.60	1.85
Total Light Vehicle Sales (Mill. Units)	15.1	15.1	15.5	16.9	17.4	17.1	16.8	16.6	16.9	16.9	16.5	16.4	16.7	17.3
Personal Savings Rate (%)	4.0	3.6	4.3	2.4	2.4	1.8	2.4	2.1	2.0	-0.4	-1.0	-0.6	-0.2	1.0
National Unemployment Rate (%)	5.4	4.9	4.5	4.2	4.0	4.8	5.8	6.0	5.5	5.1	4.6	4.6	4.7	4.6
AAA Corp Bond Rate (%)	7.4	7.3	6.5	7.0	7.6	7.1	6.5	5.7	5.6	5.2	5.6	5.5	5.8	6.5
10-Year Treasury Note Rate (%)	6.4	6.4	5.3	5.6	6.0	5.0	4.6	4.0	4.3	4.3	4.8	4.8	5.1	5.6
3-Month Treasury Bill Rate (%)	5.0	5.1	4.8	4.6	5.8	3.4	1.6	1.0	1.4	3.1	4.7	5.0	4.9	5.1
ANNUAL RATES OF CHANGE														
Real GDP	3.7	4.5	4.2	4.4	3.7	0.8	1.6	2.5	3.9	3.2	3.4	2.8	3.0	3.3
GDP Deflator	1.9	1.7	1.1	1.4	2.2	2.4	1.7	2.1	2.8	3.0	2.9	2.2	2.1	2.3
Consumer Price Index	2.9	2.3	1.5	2.2	3.4	2.8	1.6	2.3	2.7	3.4	3.2	2.3	2.3	2.5
QUARTERLY ANNUALIZED RATES														
	2006				2007				2008					
	1st	2nd	3rd	4th*	1st*	2nd*	3rd*	4th*	1st*	2nd*	3rd*	4th*		
Gross Domestic Product (\$Bill.)	13008	13197	13323	13437	13671	13834	13998	14161	14343	14517	14700	14900		
Real GDP (2000 Chained \$Bill.)	11316	11388	11444	11542	11619	11697	11781	11868	11956	12045	12120	12230		
Total Consumption (\$Bill.)	8004	8055	8111	8199	8266	8325	8383	8443	8506	8569	8610	8735		
Nonresidential Fixed Investment (\$Bill.)	1289	1303	1334	1333	1356	1382	1399	1413	1427	1443	1450	1465		
Industrial Production (% Change, Annualized)	5.1	6.5	4.0	-0.5	0.5	2.3	2.0	2.0	2.1	2.3	2.2	2.3		
Housing Starts (Mill. Units)	2.12	1.87	1.71	1.56	1.58	1.55	1.55	1.57	1.58	1.58	1.59	1.60		
Total Light Vehicle Sales (Mill. Units)	16.9	16.3	16.6	16.3	16.4	16.4	16.5	16.5	16.6	16.6	16.7	16.8		

*Estimated

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Thomas R. Hopper, Production Manager
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Duke University/CFO Business Outlook Survey - U.S. - Winter, 2007

10. On February 19, 2007 the annual yield on 10-yr treasury bonds was 4.7%. Please complete the following:

	Mean	SD	95% CI	Median	Minimum	Maximum	Total
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	3.12	4.66	2.67 - 3.58	4	-25	50	404
Over the next 10 years, I expect the average annual S&P 500 return will be: Expected return:	8.12	4.88	7.65 - 8.59	8	2	75	418
Over the next 10 years, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	11.89	7.67	11.14 - 12.64	11	0	100	402
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be less than:	0.81	6.70	0.16 - 1.46	2	-30	40	404
Over the next year, I expect the average annual S&P 500 return will be: Expected return:	7.13	3.91	6.76 - 7.51	7	-10	40	420
Over the next year, I expect the average annual S&P 500 return will be: There is a 1-in-10 chance it will be greater than:	11.45	5.28	10.93 - 11.97	10	-2	35	402

THE VALUE LINE

Investment Survey®

Part 1 Summary & Index

File at the front of the
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February 23, 2007

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The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

19.2

26 Weeks Ago	Market Low	Market High
17.7	10-9-02 14.1	5-5-06 19.6

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend
paying stocks under review

1.6%

26 Weeks Ago	Market Low	Market High
1.7%	10-9-02 2.4%	5-5-06 1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized
economic environment 3 to 5 years hence

30%

26 Weeks Ago	Market Low	Market High
50%	10-9-02 115%	5-5-06 40%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

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	PAGE		PAGE		PAGE		PAGE
Advertising (21)	1916	Educational Services (14)	1578	*Internet (11)	2227	R.E.I.T. (83)	1171
Aerospace/Defense (7)	543	Electrical Equipment (42)	1001	Investment Co. (19)	955	Recreation (46)	1841
Air Transport (12)	253	Electric Util. (Central) (69)	695	Investment Co. (Foreign) (44)	358	Restaurant (74)	291
Apparel (45)	1651	Electric Utility (East) (70)	157	Machinery (57)	1331	Retail Automotive (17)	1667
Auto & Truck (62)	101	Electric Utility (West) (63)	1774	Manuf. Housing/RV (90)	1547	Retail Building Supply (87)	875
Auto Parts (65)	780	Electronics (43)	1021	Maritime (75)	275	Retail (Special Lines) (61)	1706
*Bank (80)	2101	Entertainment (6)	1861	Medical Services (31)	630	Retail Store (2)	1677
Bank (Canadian) (54)	1564	Entertainment Tech (76)	1591	Medical Supplies (35)	181	Securities Brokerage (5)	1422
Bank (Midwest) (86)	613	Environmental (55)	349	Metal Fabricating (84)	564	Semiconductor (33)	1046
Beverage (Alcoholic) (81)	1530	*Financial Svcs. (Div.) (18)	2130	Metals & Mining (Div.) (4)	1220	Semiconductor Equip (3)	1083
Beverage (Soft Drink) (73)	1536	Food Processing (56)	1481	Natural Gas (Distrib.) (88)	459	Shoe (52)	1695
Biotechnology (32)	664	Food Wholesalers (82)	1525	Natural Gas (Div.) (59)	440	Steel (General) (85)	575
Building Materials (68)	845	Foreign Electronics (50)	1555	Newspaper (41)	1904	Steel (Integrated) (72)	1412
Cable TV (1)	812	Furn/Home Furnishings (64)	889	Office Equip/Supplies (23)	1127	Telecom. Equipment (28)	745
Canadian Energy (79)	426	Grocery (78)	1513	Oilfield Svcs/Equip. (36)	1935	Telecom. Services (10)	718
Cement & Aggregates (48)	882	Healthcare Information (34)	655	Packaging & Container (20)	920	Thrift (93)	1161
Chemical (Basic) (16)	1232	Home Appliance (71)	119	Paper/Forest Products (51)	905	Tobacco (49)	1571
Chemical (Diversified) (25)	1959	Homebuilding (95)	861	Petroleum (Integrated) (66)	405	Toiletries/Cosmetics (67)	801
Chemical (Specialty) (30)	476	Hotel/Gaming (13)	1877	Petroleum (Producing) (91)	1925	Trucking (92)	265
Coal (77)	527	Household Products (60)	938	Pharmacy Services (37)	770	Water Utility (96)	1417
Computers/Peripherals (26)	1098	Human Resources (9)	1288	Power (94)	969	Wireless Networking (89)	508
*Computer Software/Svcs (15)	2174	Industrial Services (22)	323	Precious Metals (53)	1211		
Diversified Co. (47)	1373	Information Services (38)	372	Precision Instrument (24)	125		
Drug (40)	1242	Insurance (Life) (58)	1197	Publishing (8)	1891		
E-Commerce (39)	1438	Insurance (Prop/Cas.) (29)	586	Railroad (27)	282		

*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index, Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXII, No. 26.

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Part 1
**Summary
&
Index**

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binder. Last week's
Summary & Index
should be removed.

March 2, 2007

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The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

19.0

26 Weeks Ago	Market Low	Market High
16.8	10-9-02 14.1	5-5-06 19.6

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend
paying stocks under review

1.6%

26 Weeks Ago	Market Low	Market High
1.8%	10-9-02 2.4%	5-5-06 1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized
economic environment 3 to 5 years hence

35%

26 Weeks Ago	Market Low	Market High
50%	10-9-02 115%	5-5-06 40%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

Numerical in parenthesis after the industry is rank for probable performance (next 12 months).

PAGE	PAGE	PAGE	PAGE
Advertising (14) 1916	Educational Services (7) 1578	Internet (11) 2227	R.E.I.T. (82) 1171
Aerospace/Defense (8) 543	Electrical Equipment (34) 1001	Investment Co. (27) 955	Recreation (46) 1841
Air Transport (12) 253	Electric Util. (Central) (67) 695	Investment Co.(Foreign) (52) 358	Restaurant (70) 291
Apparel (45) 1651	*Electric Utility (East) (74) 153	Machinery (57) 1331	Retail Automotive (28) 1667
*Auto & Truck (59) 101	Electric Utility (West) (64) 1774	Manuf. Housing/RV (90) 1547	Retail Building Supply (88) 875
Auto Parts (61) 780	Electronics (43) 1021	Maritime (81) 275	Retail (Special Lines) (62) 1706
Bank (77) 2101	Entertainment (6) 1861	Medical Services (31) 630	Retail Store (2) 1677
Bank (Canadian) (54) 1564	Entertainment Tech (75) 1591	*Medical Supplies (32) 177	Securities Brokerage (4) 1422
Bank (Midwest) (86) 613	Environmental (55) 349	Metal Fabricating (83) 564	Semiconductor (36) 1046
Beverage (Alcoholic) (78) 1530	Financial Svcs. (Div.) (18) 2130	Metals & Mining (Div.) (3) 1220	Semiconductor Equip (5) 1083
Beverage (Soft Drink) (72) 1536	Food Processing (56) 1481	Natural Gas (Distrib.) (85) 459	Shoe (51) 1695
Biotechnology (35) 664	Food Wholesalers (79) 1525	Natural Gas (Div.) (63) 440	Steel (General) (84) 575
Building Materials (73) 845	Foreign Electronics (49) 1555	Newspaper (41) 1904	Steel (Integrated) (69) 1412
Cable TV (1) 812	Furn/Home Furnishings (65) 889	Office Equip/Supplies (21) 1127	Telecom. Equipment (26) 745
Canadian Energy (87) 426	Grocery (80) 1513	Oilfield Svcs/Equip. (38) 1935	Telecom. Services (15) 718
Cement & Aggregates (47) 882	Healthcare Information (37) 655	Packaging & Container (19) 920	Thrift (93) 1161
Chemical (Basic) (17) 1232	*Home Appliance (68) 113	Paper/Forest Products (50) 905	Tobacco (48) 1571
Chemical (Diversified) (22) 1959	Homebuilding (95) 861	Petroleum (Integrated) (71) 405	Toiletries/Cosmetics (66) 801
Chemical (Specialty) (30) 476	Hotel/Gaming (13) 1877	Petroleum (Producing) (91) 1925	Trucking (92) 265
Coal (76) 527	Household Products (60) 938	Pharmacy Services (24) 770	Water Utility (96) 1417
Computers/Peripherals (23) 1098	Human Resources (10) 1288	Power (94) 969	Wireless Networking (89) 508
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*Reviewed in this week's issue.

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Part 1 Summary & Index

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Summary & Index
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March 9, 2007

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The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

18.4

26 Weeks Ago	Market Low	Market High
17.1	10-9-02 14.1	5-5-06 19.6

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend
paying stocks under review

1.7%

26 Weeks Ago	Market Low	Market High
1.8%	10-9-02 2.4%	5-5-06 1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized
economic environment 3 to 5 years hence

40%

26 Weeks Ago	Market Low	Market High
50%	10-9-02 115%	5-5-06 40%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

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Diversified Co. (44)	1373	*Information Services (33)	371	Precision Instrument (22)	119		
Drug (38)	1242	Insurance (Life) (57)	1197	Publishing (10)	1891		
E-Commerce (40)	1438	Insurance (Prop/Cas.) (30)	586	*Railroad (39)	282		

*Reviewed in this week's issue.

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March 16, 2007

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The Median of Estimated
PRICE-EARNINGS RATIOS
of all stocks with earnings

18.1

26 Weeks Ago	Market Low	Market High
17.0	10-9-02 14.1	5-5-06 19.6

The Median of Estimated
DIVIDEND YIELDS
(next 12 months) of all dividend
paying stocks under review

1.7%

26 Weeks Ago	Market Low	Market High
1.8%	10-9-02 2.4%	5-5-06 1.6%

The Estimated Median Price
APPRECIATION POTENTIAL
of all 1700 stocks in the hypothesized
economic environment 3 to 5 years hence

45%

26 Weeks Ago	Market Low	Market High
50%	10-9-02 115%	5-5-06 40%

ANALYSES OF INDUSTRIES IN ALPHABETICAL ORDER WITH PAGE NUMBER

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PAGE	PAGE	PAGE	PAGE
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*Reviewed in this week's issue.

In three parts: This is Part 1, the Summary & Index. Part 2 is Selection & Opinion. Part 3 is Ratings & Reports. Volume LXII, No. 29.

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2 ■ BLUE CHIP FINANCIAL FORECASTS ■ OCTOBER 1, 2006

Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

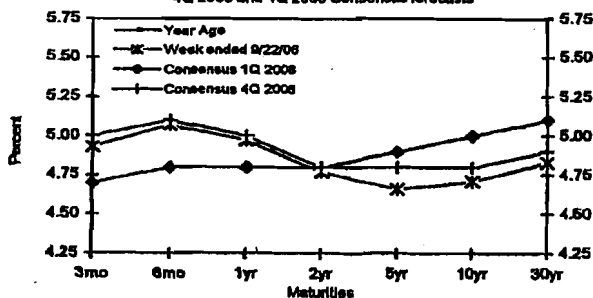
	History								Consensus Forecasts-Quarterly Avg.						
	Average For Week Ending				Average For Month				Latest Q*	4Q	1Q	2Q	3Q	4Q	1Q
Interest Rates	Sep. 22	Sep. 15	Sep. 8	Sep. 1	Aug.	Jul.	Jun.	3Q 2006	2006	2007	2007	2007	2007	2007	2008
Federal Funds Rate	5.24	5.23	5.25	5.25	5.25	5.24	4.99	5.24	5.3	5.2	5.1	5.0	4.9	4.9	4.9
Prime Rate	8.25	8.25	8.25	8.25	8.25	8.25	8.02	8.25	8.3	8.2	8.1	8.0	7.9	7.9	7.9
LIBOR, 3-mo.	5.37	5.39	5.39	5.40	5.42	5.49	5.40	5.43	5.4	5.3	5.2	5.1	5.0	5.0	5.0
Commercial Paper, 1-mo.	5.20	5.20	5.21	5.20	5.22	5.24	5.12	5.22	5.3	5.3	5.2	5.0	5.0	4.9	4.9
Treasury bill, 3-mo.	4.93	4.93	4.97	5.06	5.09	5.08	4.92	5.04	5.0	5.0	4.9	4.8	4.7	4.7	4.7
Treasury bill, 6-mo.	5.07	5.11	5.12	5.14	5.17	5.27	5.17	5.18	5.1	5.1	5.0	4.9	4.8	4.8	4.8
Treasury bill, 1 yr.	4.97	5.02	5.02	5.03	5.08	5.22	5.16	5.10	5.0	5.0	4.9	4.9	4.8	4.8	4.8
Treasury note, 2 yr.	4.77	4.83	4.81	4.83	4.90	5.12	5.12	4.94	4.8	4.9	4.9	4.8	4.8	4.8	4.8
Treasury note, 5 yr.	4.66	4.73	4.73	4.73	4.82	5.04	5.07	4.86	4.8	4.8	4.9	4.8	4.8	4.8	4.9
Treasury note, 10 yr.	4.71	4.79	4.79	4.76	4.88	5.09	5.11	4.91	4.8	4.9	4.9	4.9	4.9	4.9	5.0
Treasury note, 30 yr.	4.83	4.92	4.94	4.91	5.00	5.13	5.15	5.01	4.9	5.0	5.0	5.0	5.1	5.1	5.1
Corporate Aaa bond	5.49	5.58	5.59	5.57	5.68	5.85	5.89	5.69	5.7	5.8	5.9	5.9	5.9	5.9	6.0
Corporate Baa bond	6.40	6.49	6.52	6.50	6.59	6.76	6.78	6.61	6.6	6.7	6.8	6.8	6.8	6.8	6.9
State & Local bonds	4.21	4.30	4.34	4.30	4.39	4.61	4.60	4.43	4.4	4.5	4.6	4.6	4.7	4.7	4.7
Home mortgage rate	6.40	6.43	6.47	6.44	6.52	6.76	6.68	6.57	6.4	6.5	6.5	6.5	6.6	6.6	6.6

	History								Consensus Forecasts-Quarterly Avg.						
	3Q	4Q	1Q	2Q	3Q	4Q	1Q	3Q*	4Q	1Q	2Q	3Q	4Q	1Q	
Key Assumptions	2004	2004	2005	2005	2005	2005	2006	2006	2006	2007	2007	2007	2007	2008	
Major Currency Index	81.9	81.3	83.5	84.7	85.8	84.9	82.2	81.7	81.0	80.2	79.6	79.6	79.6	79.5	
Real GDP	2.6	3.4	3.3	4.2	1.8	5.6	2.6	2.3	2.5	2.6	2.6	2.9	3.0	3.1	
GDP Price Index	3.2	3.5	2.4	3.3	3.3	3.3	3.3	2.7	2.3	2.6	2.4	2.3	2.2	2.3	
Consumer Price Index	3.6	2.3	3.8	5.5	3.3	2.2	4.9	3.3	1.9	2.7	2.5	2.4	2.3	2.3	

¹Individual panel members' forecasts are on pages 4 through 9. Historical data for interest rates except LIBOR is from Federal Reserve Release (FRSR) H.15. LIBOR quotes available from *The Wall Street Journal*. Definitions reported here are same as those in FRSR H.15. Treasury yields are reported on a constant maturity basis. Historical data for the U.S. Federal Reserve Board's Major Currency Index is from FRSR H.10 and G.S. Historical data for Real GDP and GDP Chained Price Index are from the Bureau of Economic Analysis (BEA). Consumer Price Index (CPI) history is from the Department of Labor's Bureau of Labor Statistics (BLS). *Interest rate data for 3Q 2006 based on historical data through the week ended September 22. Data for 3Q 2006 Major Currency Index also is based on data through week ended September 22. Figures for 3Q 2006 Real GDP, GDP Chained Price Index and Consumer Price Index are consensus forecasts based on a special question asked of the panel members this month.

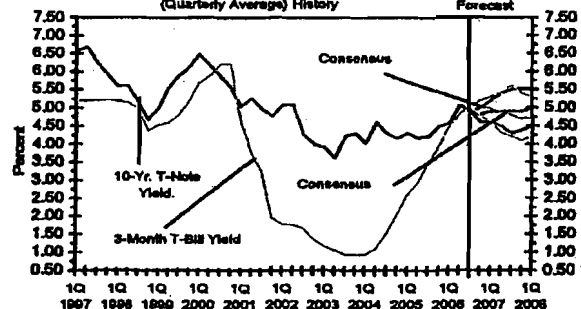
U.S. Treasury Yield Curve

Week ended September 22, 2006 and Year Ago vs. 4Q 2006 and 1Q 2008 Consensus forecasts



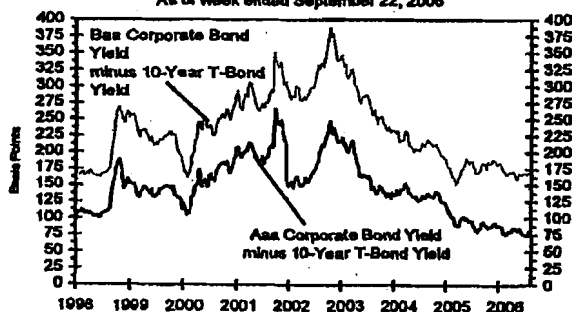
U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield

(Quarterly Average) History



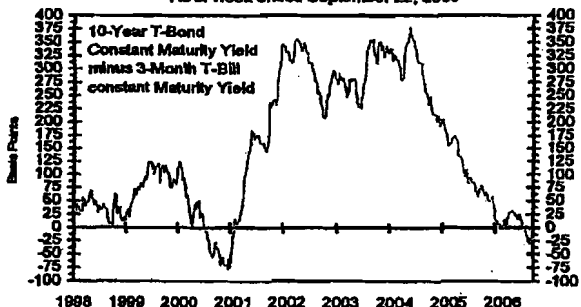
Corporate Bond Spreads

As of week ended September 22, 2006



U.S. Treasury Yield Curve

As of week ended September 22, 2006



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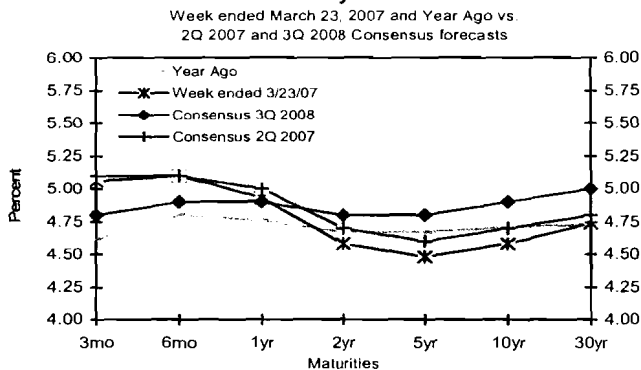
Consensus Forecasts Of U.S. Interest Rates And Key Assumptions¹

Interest Rates	History								Consensus Forecasts-Quarterly Avg.					
	Average For Week Ending				Average For Month				2Q		3Q		4Q	
	Mar.23	Mar.16	Mar.9	Mar.2	Feb.	Jan.	Dec.	1Q 2007	2007	2007	2007	2008	2008	2008
Federal Funds Rate	5.26	5.25	5.25	5.28	5.26	5.25	5.24	5.26	5.2	5.1	5.0	5.0	4.9	4.9
Prime Rate	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.25	8.2	8.1	8.1	8.0	8.0	7.9
LIBOR, 3-mo.	5.35	5.35	5.34	5.35	5.36	5.36	5.36	5.36	5.3	5.2	5.2	5.1	5.1	5.1
Commercial Paper, 1-mo.	5.23	5.22	5.23	5.21	5.22	5.22	5.23	5.22	5.3	5.2	5.1	5.1	5.0	5.0
Treasury bill, 3-mo.	5.06	5.07	5.11	5.15	5.16	5.11	4.97	5.12	5.1	5.0	4.9	4.9	4.8	4.8
Treasury bill, 6-mo.	5.10	5.12	5.10	5.12	5.16	5.15	5.07	5.14	5.1	5.0	5.0	4.9	4.9	4.9
Treasury bill, 1 yr.	4.93	4.93	4.92	4.96	5.05	5.06	4.94	5.02	5.0	4.9	4.9	4.9	4.9	4.9
Treasury note, 2 yr.	4.58	4.57	4.57	4.64	4.85	4.88	4.67	4.77	4.7	4.7	4.8	4.8	4.8	4.8
Treasury note, 5 yr.	4.48	4.46	4.48	4.51	4.71	4.75	4.53	4.65	4.6	4.7	4.7	4.8	4.8	4.8
Treasury note, 10 yr.	4.58	4.54	4.53	4.55	4.72	4.76	4.56	4.68	4.7	4.7	4.8	4.8	4.8	4.9
Treasury note, 30 yr.	4.74	4.69	4.66	4.67	4.82	4.85	4.68	4.79	4.8	4.9	4.9	5.0	5.0	5.0
Corporate Aaa bond	5.32	5.27	5.25	5.25	5.39	5.40	5.32	5.35	5.5	5.6	5.6	5.7	5.7	5.8
Corporate Baa bond	6.31	6.23	6.19	6.15	6.28	4.23	6.22	5.58	6.4	6.5	6.6	6.6	6.7	6.7
State & Local bonds	4.20	4.13	4.08	4.10	4.22	4.23	4.11	4.19	4.3	4.3	4.4	4.4	4.5	4.5
Home mortgage rate	6.16	6.14	6.14	6.18	6.29	6.22	6.14	6.22	6.2	6.3	6.4	6.4	6.4	6.5

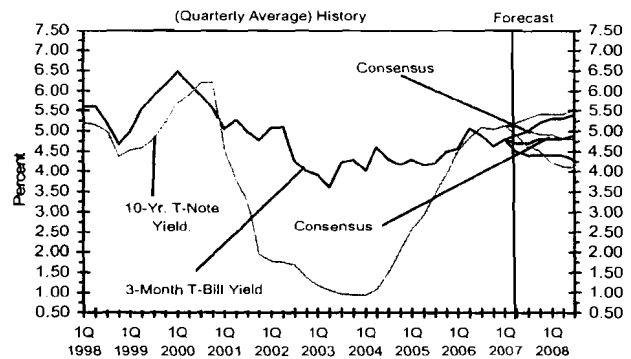
Key Assumptions	History								Consensus Forecasts-Quarterly Avg.					
	2Q		3Q		4Q		1Q		2Q		3Q		4Q	
	2005	2005	2005	2006	2006	2006	2006	2007	2007	2007	2007	2008	2008	2008
Major Currency Index	83.5	84.7	85.8	84.9	82.2	81.7	81.6	81.9	80.9	80.6	80.2	80.0	79.7	79.6
Real GDP	3.3	4.2	1.8	5.6	2.6	2.0	2.5	2.2	2.4	2.8	3.0	3.1	3.0	3.0
GDP Price Index	2.4	3.3	3.3	3.3	3.3	1.9	1.7	2.6	2.3	2.1	2.1	2.2	2.1	2.1
Consumer Price Index	4.0	5.5	3.5	1.8	5.1	3.0	-2.0	3.2	2.6	2.4	2.2	2.3	2.3	2.3

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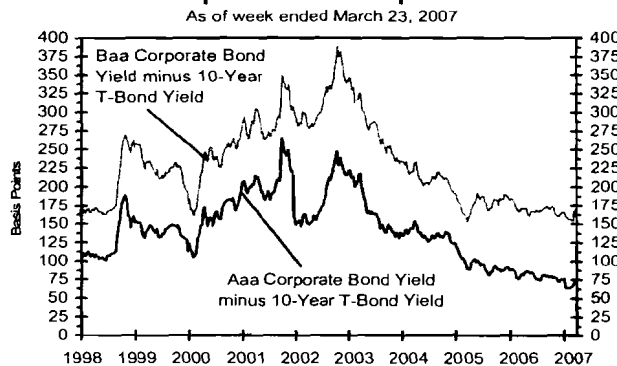
U.S. Treasury Yield Curve



U.S. 3-Mo. T-Bills & 10-Yr. T-Note Yield



Corporate Bond Spreads



U.S. Treasury Yield Curve

